

ECONOMIC HISTORY OF THE UNITED STATES

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BOGART
ECONOMIC HISTORY OF THE UNITED STATES

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PREFACE

The rapid march of economic progress and the normal industrial changes of a decade seemed to make a further revision of this work desirable. But more than any of these factors, the revolutionary changes which accompanied and followed the depression which began in 1929 necessitated the addition of much new material. Advantage has been taken of the opportunity thus afforded to make a thorough revision of the whole book. It has accordingly been largely rewritten ; two chapters on the Extractive Industries and Conservation have been combined ; while two new chapters on The Progress of the People have been added. The book has throughout been brought down to date.

In revising the work the author has endeavored to take advantage of various suggestions which have been made by teachers who have made class use of it. Greater emphasis has been placed upon the relation of cause and effect in economic development ; it is meant to be more than a mere narrative of events. Above all things the difficult aim of making the subject teachable to high school students has been kept in view.

BIBLIOGRAPHICAL NOTE

A few of the more readily accessible books have been listed at the end of each chapter. At this point it may be helpful to suggest a few general works which would serve, at slight expense, as the basis of a high school or college reference library for the study of this subject. These are :

- P. W. Bidwell and J. I. Falconer, *History of Agriculture in the Northern United States, 1620-1860*. Washington, Carnegie Institution, 1925.
- E. L. Bogart and C. M. Thompson (Ed.), *Readings in the Economic History of the United States, 1607-1916*. New York, Longmans, 1916.
- G. S. Callender (Ed.), *Selections from the Economic History of the United States, 1765-1860*. Boston, Ginn, 1909.
- V. S. Clark, *History of Manufactures in the United States, 1607-1927*. 2 vols., Washington, Carnegie Institution, 1916-1928. 3 vols., New York, McGraw-Hill, 1929.
- J. R. Commons and associates, *History of Labor in the United States*. 2 vols., New York, Macmillan, 1921.
- D. R. Dewey, *Financial History of the United States*. New York, Longmans, 1903 ; 12th ed., 1934.
- F. Flügel and H. U. Faulkner (Ed.), *Readings in the Economic and Social History of the United States, 1775-1929*. New York, Harpers, 1929.
- L. C. Gray, *History of Agriculture in the Southern United States to 1860*. 2 vols., Washington, Carnegie Institution, 1933.
- E. R. Johnson and associates, *History of Foreign and Domestic Commerce of the United States*. 2 vols., Washington, Carnegie Institution, 1915. 2nd ed., 2 vols. in 1.
- C. E. MacGill (B. H. Meyer, Ed.), *History of Transportation in the United States before 1860*. Washington, Carnegie Institution, 1917.
- A. M. Sakolski and M. L. Hoch (Ed.), *The Evolution of American Economic Life*. New York, Nelson, 1935.

In addition to these more systematic treatises, a great deal of valuable current information may be obtained from the publications of the various departments of the Federal gov

ernment at Washington. Among these may be mentioned the annual Statistical Abstract of the United States, the year-books and bulletins of the Department of Agriculture, the reports of the bureau of foreign and domestic commerce and of the census bureau of the Department of Commerce, the publications of the bureau of labor statistics, the minerals yearbook, the annual reports of the Geological Survey, of the Interstate Commerce Commission, of the Treasury Department, and of other bodies. Important reports of national commissions on various problems are frequently published. All of these government documents can be purchased at a nominal charge from the Superintendent of Documents, or may sometimes be obtained free from the congressman of the district. Interesting illustrations of particular phases of our economic development may sometimes be obtained from historical novels. A short list of American historical novels with an economic bearing is given at the end of the appropriate chapters.

CONTENTS

PART I

COLONIAL DEVELOPMENT

CHAPTER	PAGE
I. EXPLORATION AND COLONIZATION.....	1
II. AGRICULTURE AND LAND TENURE.....	24
III. COLONIAL INDUSTRIES... ..	42
IV. THE SYSTEMS OF LABOR.....	55
V. TRADE AND EXCHANGE.....	69
VI. PROGRESS OF THE PEOPLE.....	83

PART II

STRUGGLE FOR COMMERCIAL AND ECONOMIC INDEPENDENCE

(1763-1808)

VII. ENGLISH COLONIAL THEORY AND POLICY....	102
VIII. REVOLUTION AND REORGANIZATION.....	118
IX. NEUTRALITY AND FOREIGN TRADE.....	136
X. COTTON AND SLAVERY. AGRICULTURE. ...	146
XI. INTRODUCTION OF MANUFACTURES.....	161

PART III

THE WESTWARD MOVEMENT

(1808-1860)

XII. THE DOMESTICATION OF THE FACTORY SYSTEM.	174
XIII. THE WESTWARD MOVEMENT.....	195
XIV. TRANSPORTATION AND INTERNAL IMPROVE- MENTS.....	210

CHAPTER	PAGE
XV. FOREIGN AND DOMESTIC COMMERCE.....	232
XVI. CURRENCY AND BANKING.....	248
XVII. POPULATION AND LABOR.....	266
XVIII. AGRICULTURE.....	273
XIX. SLAVERY AND THE SOUTH.....	292
XX. PROGRESS OF THE PEOPLE.....	309

PART IV

APPROPRIATION AND EXPLOITATION

(1860-1914)

XXI. THE APPLICATION OF MACHINERY TO AGRICULTURE.....	328
XXII. THE EXTRACTIVE INDUSTRIES.....	348
XXIII. TRANSPORTATION AND COMMERCE.....	371
XXIV. CURRENCY AND BANKING.....	408
XXV. MANUFACTURING FOR HOME USE.....	427
XXVI. INDUSTRIAL COMBINATIONS.....	460
XXVII. THE EMERGENCE OF THE LABOR PROBLEM.....	475

PART V

EXPANSION AS A WORLD POWER

(1914-1938)

XXVIII. LABOR AND LABOR ORGANIZATIONS.....	500
XXIX. MANUFACTURES.....	528
XXX. MECHANIZED AGRICULTURE.....	545
XXXI. TRANSPORTATION AND COMMUNICATION.....	569
XXXII. COMMERCIAL EXPANSION.....	587
XXXIII. PRIVATE AND PUBLIC FINANCE.....	603
XXXIV. CONCLUSIONS.....	618
INDEX.....	639

ECONOMIC HISTORY OF
THE UNITED STATES

ECONOMIC HISTORY OF THE UNITED STATES

Part I—Colonial Development

CHAPTER I

EXPLORATION AND COLONIZATION

The problem of exploration was twofold : first, the technical difficulty of sailing on unknown waters by new routes ; and second, that of inducing nations and individuals to undertake this expensive and venturesome task.

The problem of colonization was similar, that of inducing some men to invest their capital in the new colonies and of inducing others to go in person and settle there. Connected with this was the problem of the relation of the mother country to the work of colonization and exploitation.

The conditions of economic development.—The main conditions of the industrial growth of any country consist of two factors—the character of the people and the natural resources. Only when the gifts of nature are bountiful and are intelligently utilized by man can a nation attain to the highest degree of strength and prosperity. The presence of rich natural resources alone has not been sufficient to secure the development of a weak, ease-loving race like the Latin-American, nor has mere growth in numbers, as in China or India, been enough to make the nation wealthy and strong. On the other hand, even a bold, vigorous race like the Scandinavian has not been able to make great advance in an inhospitable country like Iceland. In the territory now included in the United States, a virile, energetic people

found extraordinary opportunities for industrial development, and devoted themselves to the exploitation of the natural resources with wonderful success. The keynote of the national history of the United States is to be found in this work of winning a continent from nature and of subduing it to the uses of man. A truly gigantic task, it has absorbed the main energies of the American people from the beginning, and has been approached in significance only by their struggle to preserve the Union. Inevitably it has left its impress on the character and ambitions of the people.

For this reason, wrote Woodrow Wilson, "the history of the country and the ambitions of its people have been deemed both sordid and mean, inspired by nothing better than a desire for the gross comforts of material abundance ; and it has been pronounced grotesque that mere bigness and wealth should be put forward as the most prominent grounds for the boast of greatness. The obvious fact is that for the creation of the nation the conquest of her proper territory from nature was first necessary ; and this task, which is hardly yet completed, has been idealized in the popular mind. A bold race has derived inspiration from the size, the difficulty, the danger of the task. Expansion has meant nationalization; nationalization has meant strength and elevation of view."

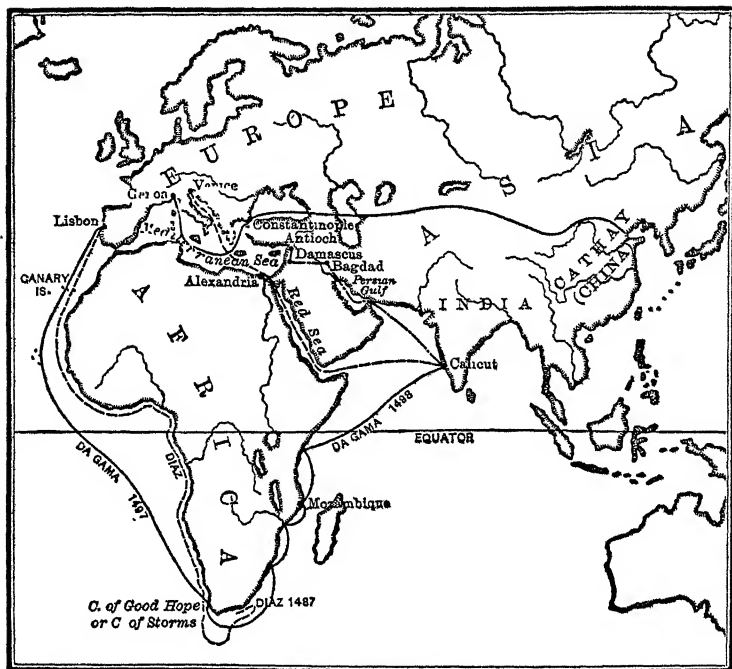
In the following pages is pictured the economic development of the American people. Properly to understand the beginnings of this development it is necessary to sketch briefly the European background at the time of the first colonization of this continent.

The Renaissance.—The fifteenth century marks the height of the Renaissance, the awakening of men's minds from the slumber of the Middle Ages. Compact monarchies were going up on the ruins of feudalism, and were gaining strength from new alliances with industrial towns. Manufactures became increasingly important ; navigation was stimulated by the discovery of the astrolabe and the mariner's compass. The invention of gunpowder was the final

blow to the military power of the feudal lords, while the invention of printing spread the new learning among the common people. Peaceful activities became increasingly prevalent, whilst the ascetic ideal of the Middle Ages was shattered, thus opening the way for commercial expansion by developing new wants.

Medieval Europe was dependent for her luxuries upon the Orient. Pepper, cinnamon, ginger, and other edible spices constituted one of the chief luxuries in an age when coarse food, limited in variety and unskillfully cooked, made the ordinary diet extremely monotonous. Drinks as well as food were highly spiced with condiments. In equally great demand were precious stones and fabrics for personal adornment or for the ornamentation of shrines and religious vestments ; while dyes and perfumes, drugs and fragrant woods all came from the same remote source. On the other hand, the export to the East of European goods, metals, woolens, and manufactured articles, formed a return trade of equal importance.

Geographical discoveries.—Down to the fifteenth century trade between the East and the West had been carried on over three routes. One of these lay across the Arabian and the Red seas and so into the Mediterranean. Another followed the coast along the Arabian Sea and the Persian Gulf and then up either the Tigris or Euphrates River as far as navigation permitted, with a final land carry to some Mediterranean port. The third led from distant China across the desert and mountains to the Caspian and Black seas. Once arrived at a Mediterranean port, these Oriental goods were taken over by European traders, for the most part Italians from Venice, Genoa, and Florence. From these cities trade routes led through the passes in the Alps to central Europe, or by ship to England, Flanders, and the Scandinavian countries. The transportation and marketing costs of these Oriental wares were enormous, the time consumed sometimes stretched from months into years, and only articles of high value and small bulk could stand the charges.



TRADE ROUTES TO THE EAST

The closing of these routes deprived Europe of a very profitable trade. In exchange for woolen cloth, lead, wine, and glassware, Europeans had brought back from the East spices, pepper, cotton cloth, silks, ivory, precious stones, and other valuable articles. The importance of the voyages of Diaz and Da Gama in re-opening the way to India is clearly shown.

As the demand in Europe for Eastern products grew, it was evident that shorter and cheaper avenues of distribution must be found.

Then it was that the exploring movement of European nations began, in the eager search for a new route to the Indies. Southward along the coast of Africa the daring Portuguese pushed their voyages in the hope of rounding that continent, a feat which was successfully accomplished in 1486 by Bartholomew Diaz, and repeated eleven years later by Vasco da Gama. Northward along the coast of Europe other voyagers sought in vain for a northern route. And

finally, confident that the earth was round, Columbus sailed due west across the Atlantic in search of a shorter route. After America was discovered, and it was found that India lay still farther to the west, Magellan pushed on around the southern extremity of this new barrier and finally circumnavigated the globe in 1522.

Fifteenth century trade.—At the beginning of the fifteenth century most of the commerce was in the hands of individual merchants who depended upon municipal encouragement and support in their business with foreigners. They usually occupied a building or an area in the foreign city with which they carried on their trade and from which they obtained special trading privileges. There were five principal groups of such trading cities, whose merchants probably carried on nine-tenths of the European commerce of that period, and of which the best known is the Hanseatic League. With the growth of centralized states the political power of the trading cities became relatively weaker, and they were less able to extend protection to their citizens abroad. Then, too, there was opposition to the privileges of foreign merchants in the states whose citizens wished the profits for themselves. New national policies developed which were opposed to the narrower municipal interests of the trading cities.

Moreover, the discovery of new routes to India and the discovery of America opened up new lines of commerce and caused a great development of trade, which in turn brought about a shifting of maritime power. The center of gravity was moved from the Mediterranean to the Atlantic seaboard. The highway of commerce had been the Mediterranean, and such ports as Venice, Genoa, and Marseilles, or such inland trading centers as Augsburg and Cologne, had been the seats of trade. But when the Atlantic became the highway, the countries that bordered upon it.—Portugal, Spain, Holland, France, and England—were given new opportunities. It soon became clear that the articles which the new world produced were immensely valuable and they

began to form the basis of a new and lucrative trade with Europe. Fish, whale oil and bone, furs, naval stores and timber, and later sugar, tobacco, dyewoods, and other products were all in great demand. Distant trading thus became the chief commercial phenomenon of the sixteenth century, and the new world became the scene of daring exploring and colonizing expeditions by each of the western European nations in turn, each trying to obtain and to hold the prize of new territory and new wealth.

Motives for exploration and colonization : Economic.—In view of the general movement towards exploration and settlement, not merely of America, but of all the newly discovered territories, it is worth while to ask what were the motives which produced such widespread, almost concerted, action on the part of the most important nations. These varied in different nations, some emphasizing motives which others deemed of less importance, but in the main they were economic — greed for gold, desire for territory, to obtain an outlet for surplus population, sources of raw materials, or a market for goods. Partly, too, they were political and religious, and at these we may briefly glance after enumerating the others.

The main impulse in the work of colonization was economic. The new world offered an opportunity for large gains and for the profitable investment of capital. The desire for the precious metals was probably the most universal and powerful motive for the exploration and settlement of America. The first quest of the earlier expeditions was always gold, and the search for this elusive commodity led to the exploration of much of the two continents. Spain won the chief prize in this respect, and her success both dazzled other nations and stimulated them to similar effort. The Spanish colonies were founded with the purpose of exploiting the mines of gold and silver. While other economic and commercial motives were of greater importance in the English settlements, yet in the earlier expeditions this was predominant with them also.

The chief reason for the early explorations, together with the probable presence of gold, was the search for a shorter route to India. This led Columbus to the west across the Atlantic, and the same motive still held in the Spanish mind until Magellan sailed through the straits which bear his name. It was this feat of Magellan's and the earlier rounding of the Cape of Good Hope by the Portuguese that directed English energies into this channel for so many years. According to the then prevailing principles of international law the title to the ocean routes to India belonged to Spain and Portugal. Hence the English sent expedition after expedition to the northeast of North America in search of this elusive passage. Such a route, if discovered, would not only be English ; it would have the additional advantage, by passing through a cold climate, of opening up a market for England's great staple, woolen cloth. The pursuit of this visionary Northwest Passage continued for a hundred years — Frobisher (1576) sailed in search of it ; Davis (1586), Hudson (1607 and 1610), Baffin (1615), Fox, James (1631), and others went on the same fruitless mission.

There was also a quest for new markets for the growing manufactures. Hakluyt tells us this as early as 1553 : "At what time our merchants perceived the commodities and goods of England to be in small request with the countries and people about us and near to us, and that those merchandises which strangers did earnestly desire were now neglected and the price thereof abated, though by us carried to their own ports, and all foreign merchandises of great account, certain grave citizens of London began to think how this mischief might be remedied. Neither was a remedy wanting — for as the wealth of the Spaniards and Portuguese, by the discovery and search of new trades and countries, was marvelously increased ; supposing the same to be a means for them to obtain the like, they thereupon resolved upon a new and strange navigation."

But not only was a market desired for English exports

a source of supply was sought for the raw materials and other articles which the English people were at that time compelled to purchase from foreign nations. England imported her naval stores from Russia and Poland ; copper from Sweden ; wines, salt, and canvas from France ; silks and velvets from Italy ; spices from the Indies. All these, it was thought, could be obtained from the new world, and all the early reports give glowing accounts of the natural productiveness of the country. At the same time, this vast interchange of goods between England and the new world would stimulate the growth of the English merchant marine, and train up a sturdy set of English seamen.

The effect of the fisheries in directing whole fleets of English, French, and Dutch fishing vessels to the Newfoundland Banks and down the New England coast was felt before the true era of colonization began. Communication between Europe and North America had been constant for a century before the settlement of Jamestown, and a thorough exploration of the coast had been made. After the settlement of the continent began, the fur trade was equally important in stimulating exploration of the interior, and in providing the material for a lucrative commerce.

A final reason which found expression in contemporary writings was that the new settlements would furnish an outlet for the surplus population of England, which for two centuries had been the subject of complaint. The cessation of the Elizabethan wars left many adventurers without an occupation, and the substitution of sheep pastures for farms had thrown multitudes out of work. All these jobless, it was hoped, would find employment in the new colonies.

Political and religious motives.—All schemes of the English for colonizing North America were based on political aims. The settlement of Virginia was regarded as a check to the northward spread of Spanish settlements, and was considered a proper defiance of the Spanish claim to the whole continent under the famous bull of Pope Alexander VI, which divided the new world between Spain and Portu-

gal. Rivalry with Spain was a note that ran through all the work of exploration and settlement, not merely of England, but of Holland and France also. Political discontent at home, as during the period of the "great migration" from England, also drove many settlers across the Atlantic in search of liberty and of freedom from oppressive laws.

Closely connected with these were the religious motives. The antagonism of Protestant England to Catholic Spain was largely religious. Captain John Smith declared the first object of the Virginia Plantation was "to preach and baptize into the Christian Religion, and by the propagation of the Gospel, to recover out of the arms of the Devill, a number of poore and miserable soules wrapt up into death in almost invincible ignorance." The religious impulse was also strongly at work in New England. The Pilgrim Fathers sought to establish a colony in which they could worship after their own fashion, and in which church membership was made the condition of citizenship. Other English settlements were made to permit the free exercise of different religious convictions: Maryland was a Roman Catholic settlement; Rhode Island was founded by Roger Williams to secure liberty of conscience; the Quaker colony of Pennsylvania was essentially religious.

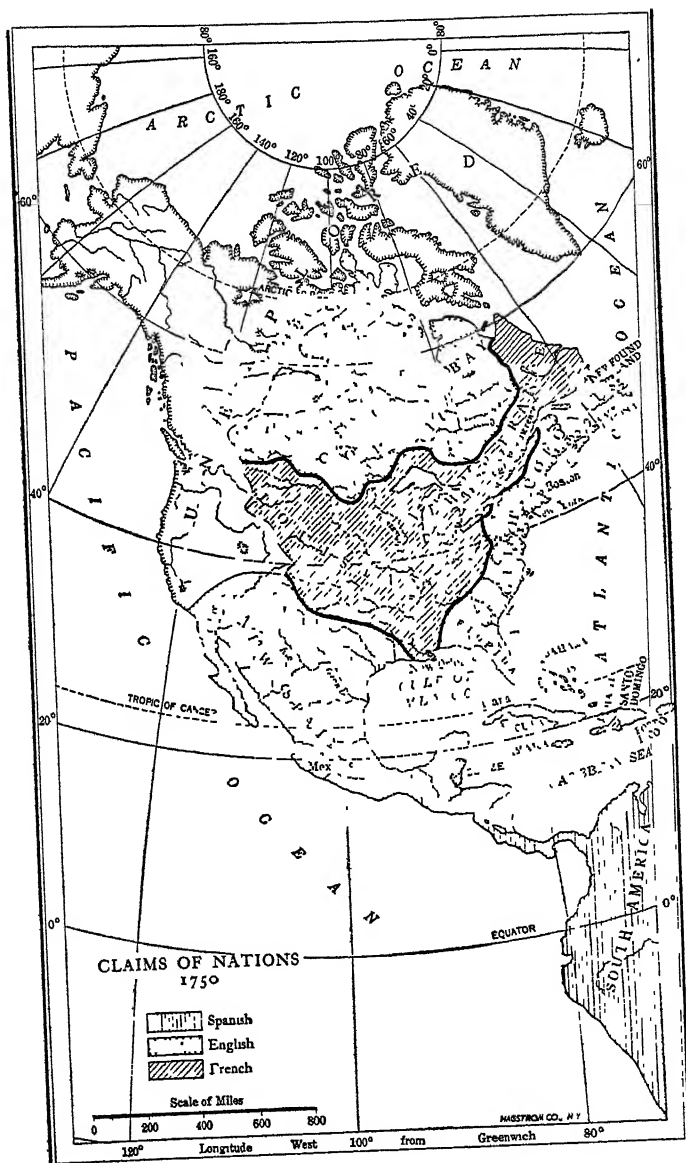
Spanish and French efforts at colonization were also conceived largely in a missionary spirit. The missionaries of these nations preceded even the traders and the settlers, and opened the way for the spread of colonies, as in the west and the southwest of North America.

Spanish methods of colonization.—To carry on this work of distant exploration, colonization, and trading, commerce had to be organized along new and different lines. Individual merchants had neither the capital nor the power to carry it on. It needed the political backing of a strong national government, more capital than could be furnished by an individual, and was thought to require a monopoly. Spain and Portugal met these difficulties by the establishment of government monopolies. The colonies were regarded sim-

ply as sources of wealth to the parent state, and their products were monopolized by a most jealous colonial policy. Industries were forbidden to the colonies which would in any way interfere with those of the mother country. Thus, at one time or another, the culture of saffron, hemp, tobacco, olives, and vineyards was prohibited under severe penalties. The energies of the colonists were all directed toward mining, in which they would not compete with home industry and would obtain the largest immediate returns ; the exports of the colonies to Spain consisted chiefly of gold and silver. Commerce with the colonies was absolutely under the control of the crown and was carried on by privileged persons. Not only the settlement, but even the visits of foreigners to the Spanish colonies were prohibited. The carrying trade was confined to Spanish vessels, and these were confined to a single port until 1764. Under such a selfish policy the interests of the colonies were completely sacrificed to those of the mother country, and their economic progress was effectually prevented.

Portugal never established any colonies in North America, and those of Spain were confined for the most part to the West Indies, Central and South America, because of the directness of the route thither from Spain and the presence there of gold. Fortunately, perhaps, for the United States the settlements in Florida and Louisiana were never developed. All of Spain's colonies north of Mexico have since come into possession of the United States, and today Spain has not a single colony on either of the American continents. The colonial possessions in 1750 are shown on the accompanying map.

Chartered companies.— In contrast with both the individual merchant of the fifteenth century and the government monopoly of Spain and Portugal, the other nations of Europe solved the problem of distant trading enterprises and of the colonization of new lands by establishing chartered companies for this purpose. Some fifty or sixty such companies are listed by Cheyney as having been chartered



between 1554 and 1698 by the governments of England, France, Holland, Sweden, and Denmark. Of these the best known are the East India companies, which were established by every nation ; but the ones which exerted the greatest influence on American colonization were the London and Plymouth companies, chartered by the English government in 1606. Such a chartered commercial company had long existed in England in the form of the "Society of Merchants Adventurers," which had carried on trade in Holland and Flanders and parts of Germany. During the second half of the sixteenth century five or six new companies were chartered to carry on trade, under monopolistic grants, with Russia, Turkey, Morocco, Guinea, and the East Indies. When the movement to colonize America took form, therefore, it naturally followed the lines already marked out, and chartered companies were organized to do the work which the government was unwilling or unable to undertake. It must be remembered that governments were not yet centralized and were not strong enough to perform many functions which today they carry on as a matter of course ; consequently they handed over to private or semi-private companies duties which were really public, and often granted such companies special privileges and even sovereign rights.

London and Plymouth companies.—The London Company obtained a grant of land stretching about four hundred miles along the coast, between the thirty-fourth and thirty-eighth parallels, and "up into the land from sea to sea westward and northward." The Plymouth Company was granted a similar territory in New England between the forty-first and forty-fifth parallels. All the region between these two companies was open to colonization by them or other persons. These chartered companies were organized for profit, and treated the distant colonies which they established as "plantations" from which they expected pecuniary returns. They were, moreover, managed by officers who remained in England, and the colonists were simply servants who were in the employ of the company. The grants

from the government gave to the companies full title to the land in their grants, fairly complete powers of government and administration, and a practical monopoly of trade between the plantations and the mother country. Capital to finance the undertaking and to send supplies to the colonists was obtained from the sale of stock, on which dividends were expected. The supplies sent with the colonists were treated as a common store, and the products of their work were turned into a common stock. Though at first quick returns in the shape of gold and silver were sought, that soon became of subordinate interest, and agriculture, fishing, and trade were given chief attention.

Early colonies.—In 1607, at Jamestown, the first settlement was established, the germ of the United States of today. The colonists, who were poorly fitted for such a task as that of settling a new country, and who were quickly disillusioned as to its nature, were held together only by the firmness of their leader, John Smith, who insisted that “nothing was to be expected but by labour.” They experienced severe hardships, some born of their own inefficiency and some of the greed or incompetency of their governors, and twice nearly abandoned the colony. A great improvement was introduced by Sir Thomas Dale, in other respects the hardest of their taskmasters, who assigned to each man a piece of garden land for his own use. It was estimated in 1614 that a man working for himself would produce ten times as much as when the labor was for the common stock. The system of joint ownership of land was given up about 1619 and was followed in time by the disappearance of the system of common trade. The discouragement of the stockholders and troubles between the company and the government led to the withdrawal of the charter in 1624, and to the end of the experiment in Virginia of establishing a plantation for profit.

The Plymouth Company made an unsuccessful, though costly, attempt to plant a colony on the Kennebec River in 1606, but the settlers, who were ill adapted to the task, re-

turned to England after a year's suffering. When the Pilgrims settled in Plymouth in 1620, the venture was financed by a private association of London merchants, who were careful to provide for a money return. The same system of a community of goods and common trading that had prevailed in Jamestown was followed here, and with equally unsatisfactory results. The scheme of working the land in common was abandoned after three years' trial, and every man was given an acre of land where he might grow his own corn. Three years later the demands of the subscribers for immediate returns had proved so annoying that the system of common trade was also discontinued, and the colonists agreed to buy out the stockholders for £1800, which was paid in yearly installments of £200. In spite of suffering at first, the colonists soon established themselves in their new home. They were a brave, industrious, religious, and liberty-loving people, and were both willing and able to endure the hardships of a pioneer life. Attracted by the slender success of the Plymouth experiment, fishing stations were established on the Maine coast, and then more permanent colonies in rapid succession : Massachusetts Bay, Maryland, Connecticut, Rhode Island, New York, New Jersey, the Carolinas, and Pennsylvania.

The two colonies thus far described were financed and managed by stockholders resident in London, and were established for profit. In the Massachusetts Bay Colony a different plan was followed : the stockholders themselves emigrated to America and took their charter with them. The stockholders' meetings were the legislative assemblies, and only those who owned stock were permitted to vote ; later, as the population grew, the representative system was introduced. Thus their economic organization accustomed them to manage their own affairs. Since they were not under obligation to obey orders or to pay dividends to a distant body of stockholders in England, the colony from the outset enjoyed self-government and prospered in spite of an inhospitable climate and soil.

Proprietary colonies.— The early method of colonization in America by means of joint-stock companies soon gave way to a system of grants to a single proprietor. A single individual could manage affairs more easily than a corporation, and seems to have been preferred by the home government as an agent for colonizing purposes. Maryland, New York, New Jersey, Pennsylvania, Carolina, and Georgia were all founded by proprietors to whom the king made grants of lands, generally as a reward for political or personal services. The proprietor was usually a man of large means who undertook the planting of a colony, as one might establish a distant estate or plantation. They were generally feudal and aristocratic in type, though this was modified and democratized by the environment and social forces of a new country. The proprietor often lived part of the time in England and part of the time in the territory which had been granted him.

As an illustration of the method by which he obtained colonists to settle his estate, the conditions of plantation announced by Lord Baltimore in 1633 may be cited. Each free planter was to pay the cost of his outfit and transportation, which amounted to about £20. To every married man and to his family, the proprietor promised one hundred acres of land each for himself and wife, one hundred acres for each adult servant, and fifty acres for each child under sixteen years of age. In 1642 the amount of land promised to each adult settler was reduced to fifty acres, and after 1683 could be procured only by purchase, part in tobacco and part in specie. In return the proprietor received his revenue from the colonies in the form of quit-rents, which were annual sums paid by the colonists in lieu of all services, and of receipts from mines and customs duties. Quit-rents were the most characteristic form of revenue and appeared in all the proprietary provinces. In Maryland these were first fixed at twenty pounds of wheat annually for every hundred acres, but were later changed to 2s. for every hundred acres and finally to 4s. In all the provinces quit-

rents were an object of dislike ; they were often resisted and were continually falling into arrears.

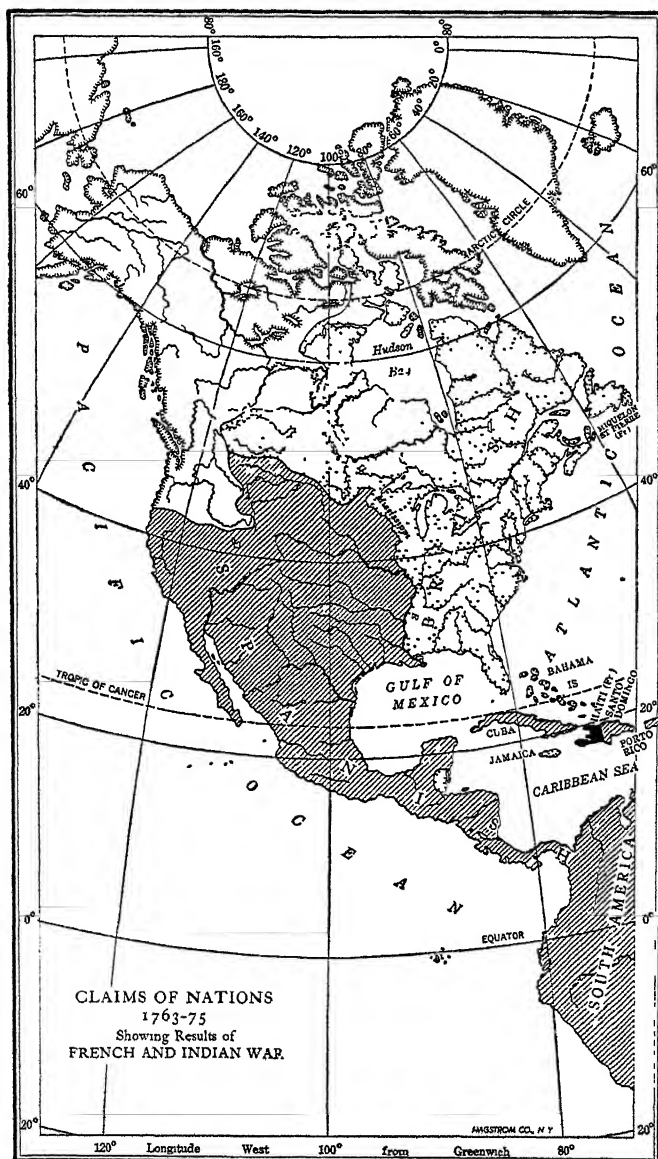
The relations between colonists and proprietors were in other respects also subject to friction. By its very nature the government of the proprietary colonies was autocratic, and the self-government of the inhabitants was limited by the large executive powers of the proprietor. In practice, however, there was wide diversity, and the more enlightened proprietors, like Baltimore and Penn, gave to the colonists local self-government. But even at their best the agreements between the settlers and the proprietors were felt as restraints in the free atmosphere of a new country ; the dissatisfied tenants after a while refused to abide by them, and in some cases ousted the proprietors. Moreover, as the population grew and trade developed, the need of stricter governmental control of the colonies by England was felt, which was rendered difficult if not impossible by the proprietary form of government. The crown took over one after another of these colonies and administered them directly by means of royal governors appointed by the crown ; a large degree of self-government was permitted the colonists by means of the local assemblies elected by the propertied classes among the settlers. By 1775 Connecticut and Rhode Island were the only charter colonies in North America, and the proprietary form of government had entirely disappeared ; all the others were now royal provinces.

Colonization a business enterprise.—It is evident that the business of founding a settlement in the New World was both difficult and expensive. To travel so far from home and to transport the necessary supplies and equipment called for a considerable initial investment. Since the country was undeveloped the colonists must take with them clothing, household utensils and furniture, farm implements and tools of all sorts, domestic animals, and even, in the early days, sufficient food to tide them over the initial period until they could raise their own crops. Once arrived at their destination, they had to contend with difficulties such as pos-

sible conflicts with the Indians, the necessity of clearing the land and fitting it for cultivation, ignorance as to the products best adapted to the soil and climate, and the scarcity of labor and capital. Various devices were used to make good the lack of labor during the colonial period, and with considerable success, but the need of capital in every form was always a pressing need and was never wholly met. It was slowly discovered that as an investment the founding of a colony was unlikely to yield any money return to the promoters at home. The economic advantages were at best indirect and remote.

The mastery of the English.—During the eighteenth century the English colonies in America developed quite rapidly. Georgia was the only new colony added to those already formed, but the population in the older colonies continued to increase ; by 1765, the English-American colonists numbered approximately 1,600,000 persons, white and black, and occupied a narrow strip of coast almost continuously from Georgia to Nova Scotia. The Ohio valley had already been successfully disputed with the French, and to the north England had secured possession of the Hudson Bay Territory, Newfoundland, and Nova Scotia. Thus the English race, the last in the field, had obtained possession of practically all the settled portion of North America. This is shown on the map on the next page. Their success must be attributed mainly to the character of the people who had essayed this difficult task of conquering and settling a new world. Hardly less important, however, in stimulating and developing this character were the institutions of the people, growing, as they were, more and more free and democratic.

Of the four important European nations which settled in the territory now included in the United States, the English nation was the only one which succeeded in maintaining a permanent foothold. The Spanish, the first on the scene and the last to retire therefrom, owed their failure to the despotic character of the government, their ruinous commercial policy, and their lack of permanent settlements. Holland



lost her possessions on the Hudson River chiefly because of her failure to encourage the growth of colonies of small land owners, because of her purely commercial colonial policy, and also because of the strategic importance to England of New Netherlands. Finally the French, who came into possession of the broad inland basins of the St. Lawrence and the Mississippi rivers, never developed settled, united colonies, but scattered their energies over a wide territory and followed the semi-nomadic occupation of the fur trader rather than the settled life of the true colonist. The policy of the French kings, moreover, by which the population was placed arbitrarily in scattered military outposts instead of being permitted to effect compact settlements of home-seekers, made them yield to the English colonists when the final conflict came.

The United States.—The expulsion of the Dutch in the seventeenth century and of the French in the eighteenth had left England mistress of practically the whole of the eastern half of North America. By the war of the Revolution English supremacy ended, and the new nation of the United States of America fell heir to the territory south of the St. Lawrence and east of the Mississippi (with the exception of the Spanish possession of Florida), comprising 892,135 square miles. Subsequent additions to the domain of the United States are shown in the table on page 20.

Growth of solidarity.—Fortunately for the English colonists they had settled in a part of the country which afforded the geographic isolation necessary for the development of national life. Hemmed in on the west by an almost unbroken mountain wall, the Appalachian chain, which was all but impassable with its thick forest growth, they populated and developed a narrow strip of coast. The mountains and the ocean formed at first the natural boundaries of their settlements, and also served as frontier defenses against the French and the Spanish. For the first one hundred and fifty years of colonial history the English settlers were limited to the Atlantic seaboard. This strip of tidewater land varied

ADDITIONS TO THE TERRITORY OF THE UNITED STATES			
TERRITORIAL DIVISION	Year	Area added * in square miles	Purchase price in dollars
Louisiana Purchase	1803	827,987	15,000,000
Florida	1819	72,101	† 6,489,768
Texas	1845	389,166	... ..
Oregon Territory	1846	286,541	... ..
Mexican Cession	1848	529,189	‡ 18,250,000
Purchase from Texas	1850	\$	10,000,000
Gadsden Purchase	1853	29,670	10,000,000
Alaska	1867	586,400	7,200,000
Hawaiian Islands	1897	6,407	¶ 4,000,000
Puerto Rico	1899	3,435	... ..
Guam	1899	206	... ..
Philippine Islands	1899	114,400	20,000,000
Samoa Islands	1900	76	... ..
Panama Canal Zone	1904	549	10,000,000
Virgin Islands	1917	133	25,000,000
Total . . . . .	.....	2,846,260	125,939,768

* Revisions in the figures in this table are made by the Census Bureau as more accurate surveys are made.

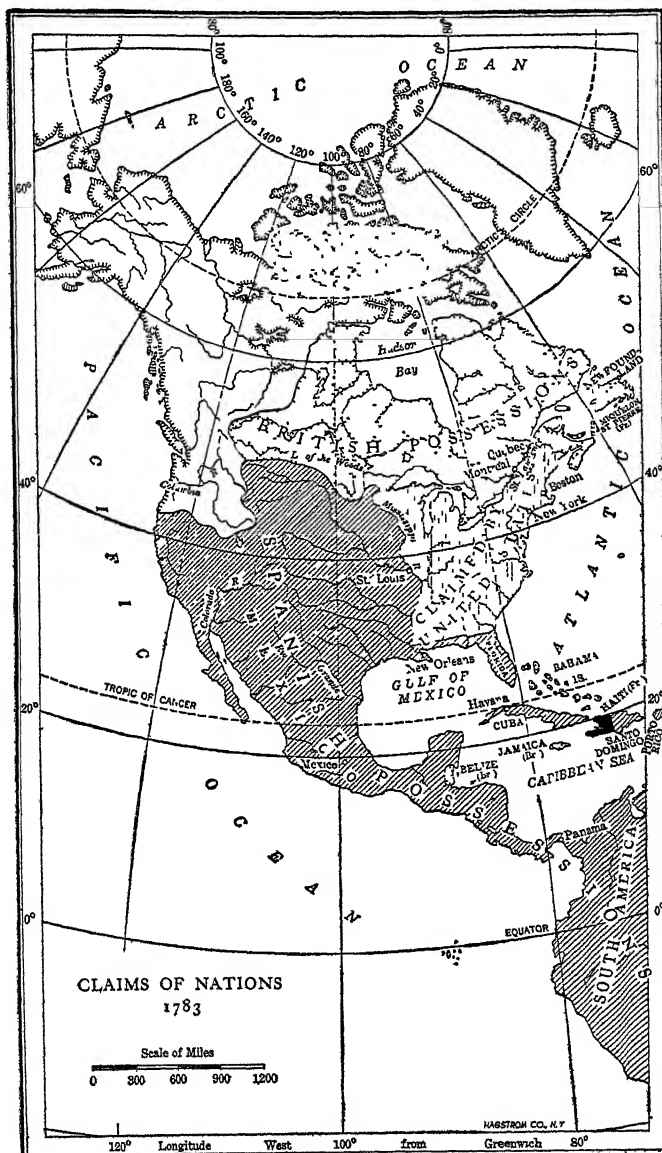
† Includes interest payment.

‡ Of which \$3,250,000 was in payment of claims of American citizens against Mexico.

§ Area purchased from Texas amounting to 123,784 square miles is not included in the column of area added, because it became a part of the area of the United States with the admission of Texas.

¶ Public debt assumed.

in width from fifty miles in New England to two hundred and fifty miles in the Carolinas. The contracted area and the stony nature of the land, which cost an infinite amount of labor to clear, held the New England colonists to their first settlements; when they needed an outlet for their energies they found it by way of the ocean. Farther south the larger available area and the extensive methods of tobacco culture invited, almost compelled, the wider dispersion of the population. In general, however, the colonists were held compactly together, while their close contiguity developed a spirit of union and a feeling of solidarity. For the first one hundred and fifty years of their existence the relation between the colonies and the mother country were



close and, on the whole, most friendly. When disaffection towards the mother country developed, they acted together with a unanimity which would have been impossible if they had been dispersed over a continent.

SUGGESTIVE TOPICS AND QUESTIONS

1. "Name at least four important inventions or discoveries which closed the Middle Ages, and show how each of them affected Columbus' undertaking" — Channing. [C. Morris, *Civilization*, II, 11, 87 ; W. C. Webster, *History of Commerce*, 108.]

2. Trace the change in commercial supremacy among nations. [Morris, *Civilization*, II, chap. 16 ; Brook Adams, *American Economic Supremacy*.]

3. When did the Pacific Ocean first become important in the commerce of the world ? How has it compared with the Atlantic ?

4. Why was it considered necessary in the fifteenth century to find a new route to India ? [E. C. Semple, *American Historical and Geographic Conditions*, 1-3 ; J. Fiske, *Discovery of America*, I, chap. 4.]

5. Are there any economic reasons why the early discovery of America by the Northmen should have been without effect ? [Semple, 5-7.]

6. What useful services, if any, did the English buccaneers perform ? [C. P. Lucas, *Historical Geography*, II, 55 ; *Encyclopedia Britannica*, art. "Buccaneers."]

7. Do you think the visits of Peary to the North Pole and of Byrd to the South Pole were more or less courageous and risky than the voyages of Columbus and Magellan ?

8. Compare the experiments and difficulties of aviators with those of the early ocean explorers. Has it been necessary to develop any new inventions like the compass and the astrolabe to make flying safe ?

9. Why did the English race supplant the Spanish and the French races in North America ? [Fiske, *New France and New England*, chaps. 1-4 ; Semple, 25-31 ; E. G. Bourne, *Spain in America* ; R. G. Thwaites, *France in America*]

10. Why did the English expel the Dutch from New Netherland ? [Wilson, *History of American People*, I, 165 ; J. Fiske, *Dutch and Quaker Colonies in America*, I.]

11. From a study of the map of present-day United States, such as is found in any atlas, make a list of geographical names that show Spanish origin ; French origin ; Dutch origin. Notice the localities where these names appear.

12. Are there any relics today of the Dutch patroonates ?

13. Do we owe any distinctive elements of our national character or progress to the Dutch settlers ? [Fiske, *Dutch and Quaker Colonies*, II, chap. 17.]

14. Show the effect of the Seven Years' War on the history of France, England, and America. [B. A. Hinsdale, *Old Northwest*, chap. 5 ; J. Winsor, *America*, V, chap. 8.]

15. What was John Law's "Mississippi Bubble" ? [Nicholson, *Money, and Monetary Problems*, 165-208 , Encyclopedias.]

16. What are the important colonizing nations today ? Why did not Germany or Italy have a share in colonizing North America in the 17th and 18th centuries ?

17. What is the policy of the United States in dealing with her outlying possessions at present ? [W. F. Willoughby, *Territories and Dependencies of the United States*, A. Ireland, *The Far Eastern Tropics*.]

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CHAPTER II

AGRICULTURE AND LAND TENURE

The problems presented to the colonists in connection with agriculture were numerous. The one first solved was how to raise the necessary food supplies; then came those of determining the best crops for each section and the most profitable methods of production, and of obtaining the necessary capital in the form of farm implements. Finally, the best methods of distributing the land and of obtaining title to it were worked out.

Colonial occupations.— During the colonial period agriculture was the main and, except in New York and New England, the only important industry. In those sections commerce and fishing afforded other outlets for enterprise, but even there agriculture remained the most important industry until after the beginning of the nineteenth century. Probably nine-tenths of all the colonists followed agriculture as their main occupation, even in New England. When the first colonists landed they were compelled to resort immediately to the raising of food supplies, to keep them from starving, and what necessity dictated at first, was found later to afford the largest returns. In the Virginia Colony misguided efforts were made at the outset to direct the energies of the colonists into other channels, especially manufactures, by legislation and the offer of prizes and bounties, but the production of the more profitable tobacco soon absorbed all the energies of the colonists. In New England, on the other hand, the effects of a sterile soil and severe climate were supplemented by the restrictive legislation of England, which, by partially depriving the colonists of a market for their agricultural staples, helped to direct their efforts to fishing, ship-building, and commerce. The same circumstances characterized, to a less degree, the occupations of the middle col-

onies. In all the colonies, agriculture was the foundational industry and limited and determined manufactures and commerce, where these existed.

Pioneer farming.—The great attraction offered to the industrious settler by America—as by every new country—was an assured and independent existence. Because of the quantity of free land, to be had practically for the asking, and the great fertility of the soil, even the pioneer with little or no capital could set up for himself and earn a living from the very beginning. Clearing a few acres for corn and a garden, and building a rude house alone or with the aid of his neighbors, he could, like the Indian, eke out his existence the first year or so with the aid of gun and net. After the second or third year, by clearing more land and raising a few cattle and hogs, his living was assured; and a large family, far from being a burden, only made his work the easier. Such a pioneer farm, as were most of those in the northern colonies, was almost self-sufficing, producing practically everything needed in the household. All the necessary food, as well as flax, wool, and hemp for clothing, leather for shoes, lumber for building, were raised at home. The few things not thus produced, such as salt, sugar, tea, glass, and iron implements, could be purchased with the surplus produce by a process of barter. Unless situated on a river, with easy access to a market, there was little or no money profit in such an undertaking; the average colonial farmer handled little ready cash in the course of his life.

In the South the character of the staple products—tobacco, rice, indigo, etc.—demanded considerable capital, because they were raised for sale and not for consumption. A couple of years might elapse between planting and final payment for the crop, and meantime food, clothing, tools, etc., would have to be bought. Consequently the land fell into the hands of a wealthier set of proprietors. But even here the small farmer, without the necessary capital to buy slaves or large plantations, was able to support himself in comfort, if not in luxury. The interior counties of all the

Southern colonies saw a considerable settlement of these yeoman farmers.

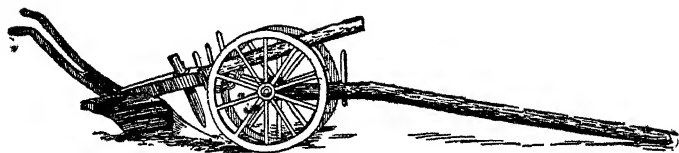
Agriculture of Europe.—We shall obtain the fairest picture of colonial agriculture if we notice briefly its development in Europe at the time when America was settled ; for the general equipment of knowledge and implements with which the colonists began their work in this country determined their immediate advance. The principal cultivated plants of Europe, and more particularly Great Britain, at the beginning of the seventeenth century were few : wheat, barley, oats, rye, beans, peas, vetches, onions, cabbages, and apples. The list of tools was still shorter : those drawn by domestic animals were the plow, the harrow, and the cart ; of hand implements, there were the sickle, the hoe, and the spade, essentially the same as had been used by the Egyptians four thousand years before ; the flail, the hand fan, and the ax, completed the list. But simultaneously with the settlement of America there began a wonderful improvement in the agriculture of Great Britain through the introduction of the turnip and other root crops, the clovers and artificial grasses. These made possible a more scientific rotation of crops and the abandonment of the wasteful two-field and three-field system. This improvement in British agriculture continued for more than a century, from about 1600 to 1732, and emigrants to America after this period brought with them the results of these advances.

Indian agriculture.—The colonists also benefited by the knowledge of the Indians, from whom they rapidly learned the best methods of raising the native crops, as well as economical methods of clearing and preparing the land for cultivation. As the early colonists practically adopted the Indian methods a description of these will serve as a picture of primitive colonial agriculture. The Indians selected localities naturally devoid of trees where possible, or made partial clearings in the forest by killing the trees either by girdling them with stone axes or by building fires around their bases. When the trees fell, they were burned into

suitable lengths, rolled into a heap, and reduced to ashes ; in this way the land was cleared with a minimum of labor. It was estimated that an industrious woman could burn off as many dry fallen trees in a day as a strong man could cut with a steel ax in two or three days. Even before the deadened trees fell the underbrush was cleared off and the corn planted amid the standing trunks. The corn was planted in rows, and a dead fish often dropped as a fertilizer into the hole with the kernels ; later it was hilled a foot or two high, and beans and pumpkins planted between the rows. This primitive agriculture was not merely rude ; it was extremely wasteful and disorderly. But it had the merit of yielding quick and fairly large immediate returns for a minimum of labor expended, and on this account was largely employed by the early colonists.

Colonial methods of farming.—The processes and the methods of farming were primitive and traditional during the whole of the colonial period. Custom and often superstition controlled every step, and there was little or no advance made until after the middle of the eighteenth century, when agriculture had probably fallen to its lowest ebb. Rotation of crops was unknown and manures were but little used. The Swedish traveler Kalm, writing of the James River Colony in 1748-9, said, "They make scarce any manure for their corn-fields, but when one piece of ground has been exhausted by continual cropping, they clear and cultivate another piece of fresh land, and when that is exhausted proceed to a third." Near the seacoast, indeed, they did fertilize their crops by planting fish with the grain, as they had been taught by the Indians, but this was not everywhere possible.

Contemporary critics invariably called attention to the wasteful and unintelligent methods of agriculture practiced in all the colonies. The author of *American Husbandry*, writing just before the Revolution, criticizes severely the general practice of exhausting the land by planting the same crop year after year : "They have not a just idea of the



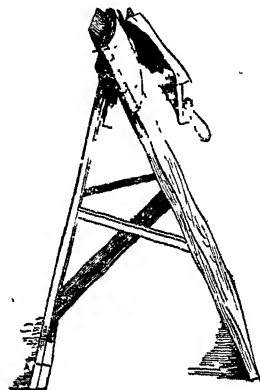
A COLONIAL WHEEL PLOW OF 1748

The plow, which was clumsy and short, was sometimes attached to a pair of wheels. The ill-shaped share and mold-board did not plow deep or straight, and great strength and skill were necessary to guide the plow. "The wheels upon which the plow-beam is placed are as thick as the wheels of a cart, and all the woodwork is so clumsily made that it requires a horse to draw the plow along a smooth field." (Kalm, *Travels in North America*, II, 195)

importance of throwing their crops into a proper arrangement, so as one may be a preparation for another, and thereby saving the barren expence of a mere fallow." He complains of the lack of enclosed fields to keep out the cattle, of the insufficient and slovenly tillage — "worse ploughing is nowhere to be seen" — and finally of the poorness of their implements. On the other hand, it must be remembered that the soil was extremely rich and did not require very careful tillage to yield large returns. And when the productiveness of the soil was reduced it was cheaper to take up fresh land, of which there were practically unlimited quantities, than to restore the exhausted qualities. That is, they practiced rotation of fields instead of crops. In the colonies labor was the most expensive factor in production and everything was done to economize in its expenditure ; land, on the other hand, was cheap and was used wastefully. From the standpoint of the colonial farmer this was good agriculture, but it shocked the traveler from abroad who was accustomed to an agriculture based upon dear land and cheap labor. While it was impossible to apply European standards to the totally different conditions in America, still it must be admitted that this process of "earth-butchery" led to bad habits and was ultimately wasteful — a fact to which the country has only recently awakened.

Experimentation and adaptation.— The first great task of the colonists was that of clearing the land and subduing

the forces of nature ; the second was to ascertain what crops were best suited to the new conditions. The problems presented to the colonists in the growing of crops were many and peculiar. They came to a country whose climate and soil were unfamiliar to them. The qualities of the native plants with which they were confronted had to be determined by experience. Seeds and plants from every part of Europe and even from Asia and the East Indies, which were brought here by settlers, had first to be tried in each colony before it was known in what soil or clime they would best flourish. For a century and a half this process of experimentation, adaptation, acclimatization, and selection continued in all the American colonies, and with such success that in the next one hundred years only a single commercially important new plant, namely sorghum, was introduced into the United States, and that about the middle of the nineteenth century. Hemp, indigo, rice, cotton, madder, millet, spelt, lentils, lucerne, sainfoin, were tried and failed in New England. In the Southern colonies wine and silk culture, and such products as figs, oranges, olives, cinnamon, and allspice, were tried, but were found unsuited to that climate. On the other hand, many European crops proved to be especially adapted to the new environment and have become fully acclimatized. There was, however, practically no improvement in the plants, vegetables, and fruits by culture and selection, after they were once introduced, except in the case of tobacco, rice, and indigo, the quality and preparation for market of which were all greatly improved.



HAND CORN SHELLER

To shell corn from the ears was one of the tasks carried on in colonial times during the long winter evenings. It was usually done by scraping the ears on the iron edge of the shovel or the handle of a frying-pan, but sometimes primitive hand-machines were used.

Native plants.—To the early settlers the native plants which they found in the new world were of far greater importance than those which they brought with them. Of these, by far the most important at the time and in the later history of the country was *maize* or Indian corn. The advantages of this grain lay not merely in the speedy maturity, the large yield, the independence of seasonal changes, and the usefulness of all parts of the plant, but especially in the ease with which it was cultivated. The early settlers soon learned from the Indians the trick of planting it among the deadened forest trees, without plowing, with the pumpkin between the hills. Without this grain the early settlements would have been much more difficult of establishment. Maize, indeed, formed the main food crop of the colonists throughout their entire history.

Of considerable consequence also was the *potato*, both sweet and white. The food value and methods of cooking the former were early learned from the Indians, and the sweet potato was in general use throughout the Southern colonies. While the early history is somewhat obscure, it seems certain that the white potato was carried from Peru or Chile, where it was native, into Spain about the middle of the sixteenth century. From that country its use spread throughout Europe, and it was introduced from Ireland into North America by the colonists about 1718. Since that time it has been an article of general consumption, although it has not occupied such an important place in this country as in the European dietary. The early use was retarded by the superstition that if a person ate potatoes every day he would not live longer than seven years; they were called "devil's apples."

A striking lack among the native flora was nutritive forage plants. Since the Indians had no domestic animals they never developed hay and pasture plants, and until these were introduced from Europe the cattle fared badly. About 1720 timothy seems to have been introduced into this country.



TOBACCO FIELD

Tobacco is grown in many parts of the United States, from southern Wisconsin to Louisiana, but the largest tobacco area, about 600 miles long and 400 miles wide, extends from Kentucky to Maryland, and from central Ohio to North Carolina. The illustration shows a modern tobacco field of the best type, as is evidenced by the size of the plants. The head of the plant to the left of the man is tied up in white paper in order to prevent cross-pollination.

This plant was of vast economic importance in the northern portions of the United States, where it was necessary to feed livestock during the winter upon hay gathered during the summer months. In the earlier colonial period cattle often starved to death in the long, severe winter, so scarce was the fodder.

Among other plants which the early colonists found, and which had an important effect upon their dietary, should be mentioned the pumpkin, the squash, and probably also the strawberry.

Tobacco.—Of all America's gifts to the Old World the most widely accepted has been tobacco. It was mentioned in Columbus' diary for November 20, 1492, and is commonly understood to have been introduced from America into England by Sir John Hawkins about 1565. It soon

came into general use and was made the object of regulation by successive English monarchs. In 1624 it became a royal monopoly, and in 1624, 1628, and again in 1631, the cultivation of the plant in England was forbidden, thus giving the colonial planters a monopoly of the British market. About 1616 its serious cultivation began in Virginia, and from that time increased rapidly, until it had displaced all other crops and most other forms of industry. From the very beginning tobacco was one of the greatest articles of export from the North American colonies, constituting between one-fourth and one-half of all the exports during the colonial period. Tobacco combined a high value with a small bulk, and was thus well suited for export, as the cost of transportation was small in comparison with its value. The first shipment, in 1619, amounted to 20,000 pounds; in the ten years, 1700 to 1709, the average annual export was 28,958,666 pounds; by 1775, 85,000,000 pounds were exported annually, with a value of about \$4,000,000.

The production of tobacco was carried on in a very wasteful manner: the land was cleared by girdling the trees and was then planted in tobacco for three years and afterwards in corn. As artificial fertilizing was not used, this method resulted in exhaustion of the soil in from three to eight years, when fresh land had to be taken up. The population was consequently widely scattered, the plantations of Virginia in 1685 covering an area as large as England itself.

The table¹ on the following page gives a partial list of plants of American origin.

Other plants.—The principal European grains and fruits were early introduced into the colonies, and their cultivation proceeded side by side with those of native origin. Indeed, the majority of the plants of great economic value today are of foreign origin. Next to maize the principal crops of the North were rye and buckwheat, and following these wheat, oats, and some barley. The culture of wheat was given special attention and met with considerable success in the

¹ A. Candolle, *Origin of Cultivated Plants*.

Middle colonies. In the Southern colonies, after tobacco, rice was the most important crop. Introduced into South Carolina in 1694, it grew abundantly ; by 1724, 100,000 barrels were exported from that colony alone, and in 1761, when the white population was not more than 45,000, the value of the rice crop was over \$1,500,000. Little cotton was produced during this period, but indigo, which was first successfully planted in 1741, was of considerable importance ; in the last decade before the Revolution, South Carolina alone exported 500,000 pounds a year, worth from two to five shillings a pound. Various fruits were early brought over from Europe, and grown wherever climate and soil were favorable, of which apples and pears were the most common ; in addition to these were stores of wild fruits, such as plums, grapes, and cherries, and berries and nuts to be had for the gathering.

In general the principal agricultural products of the colonies were as follows : New England and the Middle col-

SOME PLANTS OF AMERICAN ORIGIN			
	Very ancient cultivation in America	Cultivated before discovery of America, but of no great antiquity	Cultivated only since discovery of America
Cultivated for underground parts	Sweet potato	Jerusalem artichoke White potato Onion	
Cultivated for stem and leaves	Tobacco	American aloe Grasses	Quinine Orchard grass
Cultivated for fruit		Pumpkin Squash Gourds Watermelon Red pepper Tomato Pineapple Avocado pear	Strawberry Cranberry Blackberry Raspberry Persimmon Grape Plum Currant (black)
Cultivated for seeds	Maize	Beans (many kinds) Barbados cotton Peanut Sunflower	

onies, corn, rye, oats, buckwheat, wheat, and barley, with some tobacco from Connecticut ; Maryland and Virginia, tobacco ; the Carolinas, tobacco, rice, indigo, corn, and a little cotton ; Georgia, rice and indigo. Wool, flax, and hemp were also raised in considerable quantities for home use in the different colonies, as were the more common vegetables such as turnips, onions, peas, carrots, parsnips, pumpkins, and cucumbers.

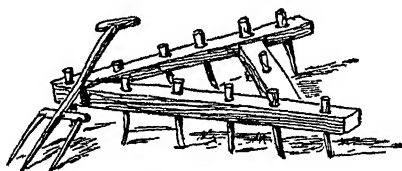
Livestock.— European cattle were imported into Spanish, French, and English colonies at a very early date, and increased very rapidly, especially in the South and the Southwest. The cattle brought over from England were much smaller than our present stock. According to Prothero, the average size of cattle and sheep sold in Smithfield market, London, as late as 1710, was : beeves, 370 lbs. ; calves, 50 lbs. ; sheep, 28 lbs. ; lambs, 18 lbs. The reason for the small size was that little or no attention was paid to the culture of grasses and vegetables for feeding the stock ; they were left to graze, winter and summer. In 1795, after the general introduction into England of root crops and artificial grasses and clovers, the weights in London were : beeves, 800 lbs. ; calves, 148 lbs. ; sheep 80 lbs. ; lambs, 50 lbs.

The severe climate of New England caused a deterioration in the stock of that section ; in the Southern colonies, where they were turned loose in the forests, they multiplied rapidly. The author of *American Husbandry* reserved his severest criticism for this feature of American farming : "Most of the farmers in this country are, in whatever concerns cattle, the most ignorant set of men in the world. Nor do I know of any country in which animals are worse treated. Horses are in general, even valuable ones, worked hard and starved : they plough, cart, and ride them to death, at the same time that they give very little heed to their food ; after the hardest day's work, all the nourishment they are like to have is to be turned into a wood, where the shoots and weeds form the chief of the pasture ; unless it be after the hay is in, when they get a share of the after-grass. . . This

bad treatment extends to draft oxen ; to their cows, sheep and swine."

By 1639, the Jamestown Colony, in spite of this bad treatment, already had 30,000 cattle ; in 1770, Wynne described the large herds, often numbering a thousand cattle, that were found in the Carolinas. Cattle-raising was an important frontier industry in many of the colonies, and dairy products were yielded in all of them for home use. Considerable quantities of butter and cheese were produced in New Jersey for export. Hogs multiplied rapidly, especially in the Southern colonies, where they ran at large in the forests. As a result there grew up a considerable export of pork ; and Virginia hams and bacon came thus early to have a high reputation. Of animal food there were also, in addition to domesticated animals, plentiful supplies of wild game and fish in all the colonies.

Farm implements.— One of the greatest obstacles to agricultural progress was the scarcity and the crudeness of the farming implements which the colonists possessed. Plows were imported from time to time, but they were extremely heavy and unwieldy. In 1637, there were but 37 plows in the colony of Massachusetts Bay, and towns often paid a bounty to anyone who would keep a plow in repair, in



WOODEN HARROW AND FORK

order to do the plowing for the community. Virginia was rather better off in this respect, having 150 plows in 1648. The massive old wooden plow, with mold-board of wood, required frequently four oxen and three men to manage it. In addition to this implement, the colonists had the spade, a clumsy wooden fork, and now and then a harrow. All of these were rudely made of wood; the only metal

available was made of bog iron, which was very brittle and made the implement likely to break in the middle of a day's work. The grain was cut with a sickle or "hook" and was usually separated from the chaff in the Southern provinces by the treading of horses on threshing-floors; in the North the flail, though slower, was more generally used. Hay and straw were cut with a scythe, raked by hand-rakes, and pitched by forks made entirely of wood. Methods of farm transportation developed slowly because of the bad roads. Skids were sometimes used, and two-wheeled carts were common; a cart-wheel shod with iron was a prized possession.

Appropriation of the land.—The claims of the European nations² to the lands of the New World were based upon priority of discovery and exploration, of conquest, and of settlement. Of these the last-named was the most important and the decisive factor in giving title. Thus the papal bull dividing the newly discovered lands between Spain and Portugal did not deter other nations from taking possession of territory which they wished. Nor was greater regard paid to the rights of the original possessors of the land, the Indians. Some of the proprietors, like William Penn, or the states, like New York, made treaties with the Indians, by which these ceded their possessions to the white man; and after the establishment of the union the Federal government was always careful to make treaties with the Indian tribes in which cessions of the land were made. But the early settlers were usually satisfied with titles to ownership based upon royal grants, and did not inquire too closely into the right of the European monarchs to claim and dispose of the land.

Land tenures.—At the time of the settlement of North America, land in Europe was still generally held on feudal tenures, and the possession of land carried with it both social and economic privileges. The land system was a most intricate one, and land could be transferred only by elaborate

² See map on page 11.

feudal methods, while the rights of inheritance and bequest were still further limited. Ownership was vested in a few, and not even the greatest thrift could obtain for the poor man a farm of his own. But land in a new country, where it could be had almost for the asking, soon came to be held and transferred like any other species of property, and ownership of it conferred no special rights, except as it was generally made a condition to office-holding or the franchise. In some colonies, especially the proprietary, large estates were created whose proprietors enjoyed special privileges, while it was also made difficult for small cultivators to obtain land.

The prevailing theory in England was that the title to land in America was vested in the crown, and from him all subsequent rights were derived. By grant from the crown land passed to chartered companies and to proprietors and was by them regranted to individuals, while in the royal provinces the governors were given authority to make grants of land directly. By one way or another the land passed into the possession of the actual cultivator. Many of the grants, especially those to the proprietors, were made under some form of feudal tenure, such as the exaction of an annual quit-rent. This followed from the theory that the king could not alienate the property of the crown and that the proprietor was really a tenant. When the proprietors in turn regranted the land, they also exacted a quit-rent which, though it was generally merely a small sum of money, also proved a troublesome feature.

Land-holding in New England and the Middle colonies.
— When the first settlement was made, the Pilgrims held their land and other property on a communal basis, turning their labor and products into a common pool, but a few years of failure caused the abandonment of this plan, as had been the case several years before in Virginia. Each of the original or new settlers was granted a certain number of acres as his share in the colony. In order to attract settlers later comers were given land free. Thus the Massachusetts Bay Company offered 50 acres for each passage paid. Large

estates never became the rule in New England, but small farms were typical, largely because of the character of the soil and the crops, which necessitated careful cultivation. With the prevailing method of hand tillage a man could cultivate comparatively few acres. Throughout the whole section, and as far south as Delaware, communal holdings in the towns were also found; fields—usually three—were at first held in common, and the cultivation was decided each year in general meeting. Later, as the towns filled up and grew strong enough to protect outlying fields against raids, the arable meadow and wood land was divided.

In the Middle colonies, the land system was practically the same as in New England, in both character and results. Small farms, owned by the farmer, were the rule. The only exception lay in the large manorial grants made by the Dutch and confirmed and extended by the early English governors in New York. The manorial system, however, was restricted to the valley of the Hudson, and the large estates of from 50,000 to even 1,000,000 acres lay in large part uncultivated until they were broken up into small holdings. New Jersey granted 150 acres to each immigrant who brought with him a musket and sufficient provisions to last six months, with an additional 150 acres for each man-servant or slave. William Penn offered 500 acres to anyone who brought his family over and settled permanently in his colony. The type of agriculture in the Northern colonies as a whole, however, was self-sufficing, aiming to supply only the wants of the colonists, since little demand for their grain existed abroad. This self-sufficing system made necessary a large number of small farms worked by their owners, and these in turn produced a democratic type of society, for men felt themselves essentially equal and all worked hard.

The plantations of the South.—While small farms were characteristic of the North, there were large plantations in the alluvial coastal plain of the South, though in both sections there were exceptions to the general rule. These large landed estates were owned by comparatively few proprietors,

who constituted an aristocratic upper class in a strongly stratified society. The difference between New England and the South was mainly the result of economic causes : the fertile soil and the presence of a few staples for which there was a good market abroad, and which lent themselves to extensive cultivation, made the large plantation profitable in the Southern colonies. These consequently devoted themselves to the production of tobacco, rice, and indigo, and developed a commercial type of agriculture, which demanded a large supply of cheap labor. The average size of the great Virginia estate was about 5000 acres, while in New England the average farm was probably not far from 100 acres. On the other hand, in the seventeenth century, the value of an acre of New England land was about fourteen times that of an acre in Virginia. There were, however, many small farms in the Southern colonies, especially in the upland country away from the seacoast.

The law and the practice regarding grants and inheritance were also partly responsible for the enormous estates of Virginia and of other Southern colonies. The grants that were made to settlers were usually larger than those in the Northern colonies. Thus the London Company in Virginia gave 100 acres to each stockholder with an additional 100 when the grant was settled. The proprietors of Carolina granted 100 acres to each settler and a similar amount for his wife, for each child and man-servant, and 50 acres for each woman-servant. Grants were made to the companies and "adventurers," who undertook to establish colonies ; as "head right" for the importation of settlers ; to the settlers themselves ; for meritorious service, to clergymen, physicians, and even to servants ; or as gifts for purely personal reasons. The occupation of the land granted and the payment of a small annual quit-rent were the usual conditions to the issuance of a patent or title deed.

Inheritance in the Southern colonies, as also in New York, followed the law of primogeniture ; the principal of entail was even more strictly applied in these colonies than in Eng-

land. Primogeniture and entail were legal devices by which property was kept in the same family for many generations. Primogeniture provided that the eldest son alone should inherit the entire property if his father were to die without having made a will. Entail forbade the transfer of property by sale or gift. In New England and Pennsylvania, while the right of the eldest son was still recognized, he received only a double portion, the rest of the property being divided equally among the other children. Primogeniture and entail were not abolished entirely until the Revolution.

SUGGESTIVE TOPICS AND QUESTIONS

1. What were the characteristics of land tenure in feudal times? [A. R. Wallace, *Land Nationalization*, 22-25; E. de Leveleye, *Primitive Property*.]

2. What objections are there to primogeniture and entail? [J. S. Mill, *Principles of Political Economy*, II, chap. 3; R. H. I. Palgrave, *Dictionary of Political Economy*.]

3. Describe the two-field and three-field systems of agriculture in Europe. [L. L. Price, *English Commerce and Industry*, 25, 102; W. Cunningham, *Outlines*, 172-174; G. T. Warner, *Landmarks*, 20, 27; E. P. Cheyney, *Introduction*, 36.]

4. Compare the life of a tenant farmer in England with that of a free farmer in the colonies. [A. Brown, *Genesis of the United States*, I, 252, 352, 506, 688; *American Husbandry*, I, 122, 190-191.]

5. Is "earth-butchery" still practiced in the United States? Give reasons for your answer.

6. Do you know of any plants that have been tried and have failed to grow in your locality? Why?

7. Where did the herds of horses which the later Western pioneers found on the prairies come from? What was the origin of the so-called "native" cattle?

8. Describe the treatment of the Indians in the acquisition of title to land by the whites. [P. A. Bruce, *Economic History of Virginia in the Seventeenth Century*, I, 487-499.]

9. Why did the attempts at the communal type of settlement fail at Jamestown and at Plymouth? [J. Fiske, *Old Virginia and Her Neighbors*, I, chap. 4; H. L. Osgood, *American Colonies in the Seventeenth Century*, I, part I, chaps. 3, 5; A. Brown, *Genesis of the United States*, I, 402-413.]

10. Was this a fair test of communism?

11. Was it wise for the early colonists to kill and burn the forests ?
12. Where were the forests most extensive ? [N. S. Shaler, in J. Winsor, *History of America*, IV, xiv.]
13. Describe the attempts of the colonists to produce wine, silk, etc. [J. L. Bishop, *History of American Manufactures*, I.]
14. Compare the native edible plants, and animals capable of domestication, in the old and new worlds. [N. S. Shaler, *Nature and Man in America*, 145.]
15. How did the colonists gain title to their land ? Was the same true in all colonies ? [Bruce, I, 502-519 ; Osgood, *American Colonies in the Seventeenth Century*, I, part 2, chap. 11.]
16. Give a floor talk on the importance of tobacco cultivation in the colonial economic system. [Fiske, *Old Virginia and Her Neighbors*, I, 167-70, 220, 230-31 ; II, 96-98, 157-60, 192-94, 198-99 ; S. E. Forman, *Side Lights on Our Social and Economic History*, 54-57.]

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CHAPTER III

COLONIAL INDUSTRIES

The problem of industry in a new country is how to get the largest returns from the environment. After satisfying certain primary needs, which may best be done within the family or the community, the question arises as to the choice of industries and of the methods by which they may most profitably be carried on. This was generally a method of trial and error.

Industries in the colonies.—The economic life of the colonies was extremely simple, the main energies of the people being directed to the extractive industries. In addition to agriculture, which naturally in a new country claimed the first attention of the colonists, other industries soon sprang up as needs and opportunities directed. Domestic industries, which consisted largely in working up the raw products of the farm, were indistinguishable from agriculture. In New England, where agriculture by reason of the infertile soil was least profitable, the chief industrial occupations were lumbering, shipbuilding, trading, and fishing. The people of the Middle States engaged in the fur trade, and, as did those of New England, in the production of a wide range of household supplies. Carpentry, blacksmithing, and tanning were generally carried on in every community, while the spinning wheel, the loom, and the hand card were to be found in almost every house. In the South, on the contrary, there were few industries outside the plantations of tobacco, rice, and indigo ; some naval stores were produced, chiefly in North Carolina, but the varied household manufactures of the North were largely lacking except on the larger plantations, even the most necessary supplies

being frequently procured from the Northern colonies or from England.

Lumbering.— From the very beginning the efforts of the colonists were directed to the utilization of the almost exhaustless resources of the forests which surrounded them. Upon these were based four industries — lumbering, ship-building, the production of naval stores, and the making of potash. Wood was used for the building of houses, the construction of furniture and implements, for firewood and other household purposes.} Excellent barrel staves were made of oak, which were in great demand for sugar in the West Indies and wine from the Canary Islands, as well as for fish, meat, flour, rosin and molasses, naval stores, and whale oil, which were important items of colonial trade. } In order to make use of the forest resources it was necessary to have sawmills, and these were early built. The first mill in the colonies is stated by Bishop to have existed in Dorchester, New England, as early as 1628, which was thirty-five years before they were introduced into England. } The Dutch built many mills along the Hudson to run by wind or water. Most of these mills were built where there was water power and here the forests were rapidly cut down and converted into merchantable timber. Farther inland, where power and water transportation were lacking, the magnificent forests were regarded rather as an encumbrance and were burned off. Some potash was made from the wood ashes, but this was a by-industry of land clearing and was seldom pursued for its own sake. Bark was used for tanning. }

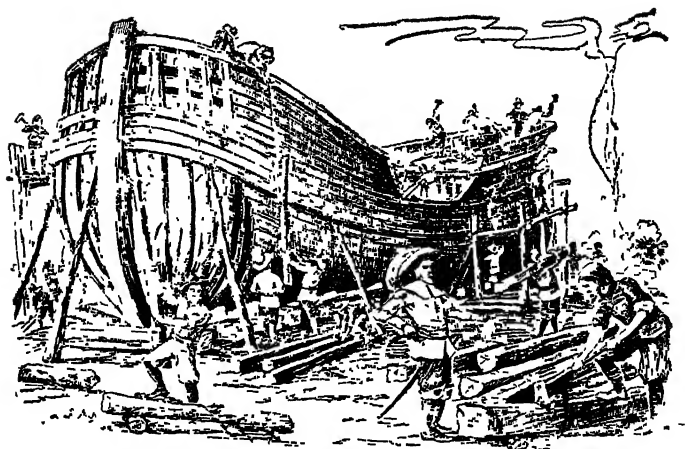
A large export trade in lumber products early developed, consisting chiefly of staves and heading, shingles, hoops, planks, and timber of various sorts for masts, spars, and buildings. Even by hand a man could make 15,000 clapboards or barrel staves in a year, which, according to Gent, were worth in the colonies £4 per thousand, and in the Canaries £20. Because of the rapid destruction of her own forests in the iron industry, England endeavored to secure for herself the colonial supply of timber and placed it upon

the list of "enumerated" articles while early in the eighteenth century she provided for its importation free of duty. Trees suitable for masts were marked with a broad arrow and reserved for the use of the royal navy, under a penalty of £100 if they were devoted to other purposes. In spite of these acts most of the lumber exported went to the West Indies and to Spain and Portugal. In 1770 the value of the lumber exported from the colonies was about \$775,000.

Naval stores.—Closely allied to lumbering was the production of naval stores, which Parliament made vigorous efforts to develop during the eighteenth century. England had imported these articles principally from Sweden, and when at the beginning of this period the Swedish company which controlled their supply attempted to raise the price, Parliament turned for relief to the North American colonies. By the Act of 1704 generous bounties were given on the importation of tar and pitch, on rosin and turpentine, upon water-rotted hemp, and upon all masts, yards, and bowsprits. Except in North Carolina this policy was not very successful in stimulating the production of these articles. In 1770 the quantity of tar exported was 82,005 barrels; of pitch, 9,114; and of turpentine, 17,014 barrels, worth in all about \$175,000.

In addition to the naval stores, pot and pearl ashes, oak bark, and some other resources of the forests were produced in considerable quantities for exportation to England, where they were used in the shipbuilding, bleaching, tanning, and other industries of that country; their value in 1770 was estimated at \$290,000.

Shipbuilding.—One of the most important industries in the colonies, particularly in New England, was shipbuilding. The industry was begun within three years after the establishment of Plymouth Colony, and by 1641 had already grown to such proportions as to require official regulation. In 1676 Massachusetts had a total of 730 vessels. Because of the large supplies of splendid timber at the water's very edge, cheaper and better vessels could be built in the Ameri-



COLONIAL SHIPBUILDING

Sea-going vessels began to be built in New England after 1630, and were soon sufficient for home needs. Planks of oak and tall, straight masts of fir could be had almost at the water's edge, while everywhere was pitch pine for the making of tar and turpentine. The colonists soon became excellent shipwrights.

can colonies than anywhere in Europe. Towards the end of this period an oak vessel could be built in Massachusetts for \$34 a ton, while neither in England nor on the continent could a similar vessel be built for less than \$50 a ton. American ships soon began not merely to carry on a vigorous trade at home, but to crowd out English shipping in their home ports. About fifty New England built vessels were annually sold abroad, and by 1775 about 398,000 tons, or nearly one-third of the tonnage afloat under the British flag, had been built in American dockyards.

The shipbuilders on the Thames more than once complained to Parliament of the effect of American competition upon their industry, but it must be noted that in this instance the Board of Trade placed no restriction upon the colonial industry. Indeed the effect of the navigation acts, which restricted all trade to English and colonial-built shipping, greatly stimulated shipbuilding in the colonies. A contemporary account placed the number of American ships at

2,000, and of seamen at 33,000, in 1775. The proportion of the vessels engaged in foreign trade owned at home differed greatly in the various colonies : in New England three-fourths of such vessels were owned by men living in that section, while in the South only one-fourth was so owned.

Fishing.—For years before the first English settlement in North America English fishermen had frequented the New England coast and established summer fishing stations, and by the end of the sixteenth century employed as many as two hundred vessels and six thousand men and boys in the Newfoundland fisheries. To the settlers at Plymouth John Smith gave some blunt but sensible advice, “the staple from hence to produce is fish,” and it was from the fisheries in truth that New England gained her greatest wealth. The industry was developed early and throughout the whole of the colonial period remained a lucrative one. The cod fishery began about 1670, and developed so rapidly that within 100 years 665 vessels were employed in this industry, which required the services of more than 4,000 seamen. The cod fish were dried and salted and formed the basis of a profitable export trade, the best grades being sent to the Catholic countries of Europe, and the poorest to the West Indies for consumption by the slaves, while the “middlings” were consumed for the most part at home.

About 1700 the whale fishery was begun and was carried on with such success that by 1721 about 260 vessels were employed. Within fifty years the whales deserted the American coast, but were followed to the Arctic and Antarctic oceans by the whalers. In 1771 this business employed 304 vessels, with 4,059 seamen. Upon the spermaceti oil thus obtained was erected a candle-making industry of some importance. Oil and whalebone were also exported, the former as an illuminant and the latter for women’s stays and hoop-skirts.

The fishing industry was confined exclusively to New England and by the end of the colonial period was estimated to bring in about \$2,000,000 a year ; during the colonial

period not a vessel engaged in either the cod or the whale fisheries was owned south of Connecticut. For that section it possessed great economic significance. The development of the cod and the mackerel fisheries provided New England with a needed staple for foreign trade ; they made the inhabitants a commercial and sea-going people, giving them a wider outlook and breaking down the isolation of a purely agricultural community ; whale fishing brought in larger vessels and the practice of making longer voyages. The training which New England seamen received in the fisheries made them the best and most daring sailors in the world.

Fur trading.— As wild animals abounded in the primeval forests of North America, trade in their valuable furs and skins was early developed, and throughout the colonial period remained an important frontier industry. The earliest English colonists traded for furs with the Indians in New England, but New York soon became the most important center of this trade because of its advantageous situation at the mouth of the Hudson River. The fur trade in New Netherlands was a monopoly of the Dutch West India Company, and so lucrative was the business that their first shipment of furs is reported to have brought in a profit of more than \$10,000 ; in eight years the annual return had amounted to \$56,000. So profitable a business aroused keen competition and the British fur traders pushed up the Hudson River to the Great Lakes, where they established a station at Oswego to intercept the Indians on their way down the St. Lawrence to Montreal, out along the valley of the Mohawk to the Iroquois country, and across the Alleghenies to the Ohio River. There they came into conflict with the French, and the competition over the fur trade was one of the chief immediate causes of the French and Indian War.

The fur trade possessed great economic importance in the early history of this country, because it furnished a ready, cheap, and yet valuable article of export for the colonies. But more than this, it furnished the initial incentive to west-

ward exploration and settlement. As population became more dense and game more scarce the fur traders followed the retreating supply across the Alleghenies and farther west. The trading posts were soon taken up by the settler and the frontier was pushed ever farther from the coast. In order to secure the diminishing supply for her own use, England in 1764 placed hides and skins on the list of enumerated articles. In 1770 the exports of furs and peltry from all the Northern American English colonies, including Canada, were about \$700,000.

Household industries.—During the seventeenth and the eighteenth centuries the domestic system of industry prevailed in England, under which handicrafts were carried on by workmen in their own homes. Many of the immigrants to America during this period had been artisans at home and had brought with them to the new world considerable knowledge and skill in the mechanic arts. Furthermore, the sparse and scattered population made it necessary for the colonists to provide many things for themselves, for they were too civilized to revert to the rude Indian mode of life. In all the Northern and Middle colonies, accordingly, household industries flourished, and many of the farms and plantations were nearly self-sustaining economic units. These household industries supplied only family needs and did not absorb the entire time of any one person ; they were therefore confined to those branches which did not call for either expensive tools or special skill. Foremost among these were the textile industries — the breaking of flax or hemp and the ginning of cotton, the combing of wool and the other fibers, spinning, weaving, dyeing, and fulling. Another group of industries, which was carried on by almost every household, was that connected with the slaughter of livestock, such as the curing and salting of meat, the curing and tanning of leather, and the making of lard, tallow, candles, and soap.

In addition to these household industries there were other branches of manufacture which required special skill and

mechanical appliances, and these were carried on in workshops by skilled craftsmen. The number of handicrafts carried on in the colonies prior to the Revolution was quite large ; among the more important trades were tailoring, tanning, shoemaking, saddlery, hatmaking, coopering, blacksmithing, and shipbuilding. Finally, there was still another miscellaneous group of industries, which do not come within either of the other classifications, such as the production of naval stores, potash, bricks, brewing, and iron manufactures.

Attempts at manufacturing.—Manufacturing proper, that is the production of goods outside the home for sale in the market or for export, never developed very far during the colonial period. Even Bishop, the diligent historian of American manufactures, admits that the history of the efforts made during the first one hundred years to introduce the manufacturing arts into the American colonies is “little more than a record of unsuccessful enterprise.” Yet, even from the first, experiments were made in manufactures and several of the colonial governments gave special encouragement to such enterprises by bounties and other legislation. When iron came from Spain, leather from France or Germany, cloth from England, it was thought that it would be more economical to produce these things at home. The first efforts of the Virginia Colony were devoted in 1608 to the manufacture of pitch, tar, soap-ashes, and clapboards. But this was done under the direction of the council in London ; Captain John Smith saw better the needs of the situation, and begged them to send over “husbandmen, gardeners, fishermen, blacksmiths, masons, and diggers up of trees’ roots.” These early experiments were mainly ineffectual, for the colonists soon found that they could more profitably devote themselves to other pursuits. The scarcity of labor, the lack of capital, and the hard conditions of pioneer life prevented the earlier colonists from engaging in the manufacture of products other than those which were absolutely necessary. South of the Potomac, however, many manufactured articles were imported from Great Britain ; manu-

facturing was developed, so far as it was developed at all, largely in New England and the Middle colonies.

Textile manufactures.—The spinning and weaving of coarse “homespun” woolen and linen cloth for domestic use was carried on within the family from the earliest period of colonial history. Later, especially with the coming of immigrants skilled in the textile industries, the manufacture was more developed, and fulling mills were built. The investigation made by the Board of Trade and Plantations in 1731 “with respect to laws made, manufactures set up, or trade carried on in the colonies, detrimental to the trade, navigation, or manufactures of Great Britain,” showed that the Northern colonies already produced much of the cloth they consumed. Taking them altogether, the colonists probably made about three-fourths of the textile goods for domestic use, but these were almost exclusively of the coarser grades. The finer qualities of linens and other goods continued to be imported from England and Ireland throughout this period.

Iron manufactures.—Iron was found in all the colonies in considerable abundance, in the form of bog iron ore, and its ease of mining and working, together with the abundance of fuel and water power, led to an early development of the iron industry. Raw iron, agricultural implements, household utensils, tools, and hardware were produced in growing quantities, most of the iron wares being manufactured in the Northern colonies, while raw iron was mined in the South, converted into bar or pig iron, and exported thence to England. The reports of the governors of various colonies in 1731 showed some six furnaces and nineteen forges, all in New England, but this was undoubtedly an understatement; they produced “not one-fourth part enough to serve their own use.” Twenty years later the colonies reported four slitting and rolling mills, ten forges, and five steel furnaces.

The development of the industry in the colonies led Parliament to prohibit, in 1750, the erection of any slitting or

rolling mill, plating forge, or steel furnace, under a penalty of £200, in order to protect the home manufacturers. This act was one of the most injurious of the commercial restrictions upon colonial industry. At the same time the act provided for the development of the production of pig and bar iron by admitting it into the port of London free of duty. In 1757 this was extended to any port in England. England was at this time importing some 20,000 tons of Swedish and foreign iron, and hoped by this act to secure her raw material from the colonies and at the same time to stifle the growing manufactures there. The exports of pig iron grew slowly, under the stimulus thus given, from about 2,000 tons in 1745 to over 7,000 tons in 1771.

Other manufactures.—Various other manufactures existed in the colonies at an early period and were gradually developed to meet the growing wants of the people. Most of these, however, were for local consumption, and on a small scale. Such were corn and grist mills; leather goods of all descriptions, as boots, shoes, breeches, gloves, harness, and saddlery; furniture, cabinet wares; wagons, carriages, carts; coopers' wares, brass and copper wares, tinwares; bricks, tiles, and potteries; cordage, twine, and sail cloth; paper; spirituous and malt liquors; salt; and beaver hats. Some of these articles were produced in sufficient quantities to allow of export to the other colonies, the West Indies, or even to England. Thus the Board of Trade and Plantations reported in 1731 that about 10,000 beaver hats were made annually in New England and New York; in the same year, in response to a petition of the London hatters, the exportation of hats from the colonies was prohibited and their further manufacture limited. The distillation of rum from West Indian molasses was an important New England industry, employing at one time more than twenty distilleries in Newport alone; this was penalized by heavy duties by act of Parliament in 1733, though the act was not enforced. Of the other industries the most important were the manufacture of bricks and tiles, leather goods, cordage and sail

cloth, and printing and paper making. Copper and lead were also mined in some of the colonies. The latter was essential for firearms and was in great demand by hunters and trappers. On the whole, colonial manufactures were articles of primary importance, such as clothing, furniture, household utensils, farm implements, and ships, with some other necessities and comforts.

Colonial bounties and tariffs.—In accordance with the prevailing mercantilist doctrines the colonial governments, as well as that of Great Britain, thought it necessary to regulate trade and industry by legislation, and consequently practically every one of the colonies passed laws providing for bounties or duties. As the production of domestic cloth was especially desired, seven of the colonies offered bounties to stimulate the growth of wool and linen and their manufacture into cloth. Massachusetts, for instance, in 1640, ordered a general bounty of 25 per cent on cloth production "for the incuragement of the manufacture," but repealed it three years later on account of the heavy drain on the treasury. Bounties were also offered for the production of silk, paper, iron, and firearms, by the various colonial governments; and of vines, indigo, cochineal, silk, and hemp by the London Society of Arts and Manufactures.

On the other hand, import or export duties were imposed by the colonial legislatures in nearly every colony in addition to those levied by England. These were sometimes for revenue purposes simply; sometimes for purposes of regulating expenditures, of retaliation or of protection. No consistent or permanent policy was followed in these tariffs, and they were as frequently directed against neighboring colonies as against foreign nations.

SUGGESTIVE TOPICS AND QUESTIONS

1. Why did England desire to promote the culture of silk in the colonies? [A. Smith, *Wealth of Nations*, IV, chap. 2; G. Schmoller, *The Mercantile System*, 83 E.]

2. Is raw silk produced in the United States today? Where does it come from? Why? [C. C. Adams, *Commercial Geography*, 101.]

3. Are the fisheries off the Newfoundland Banks open to all nations alike? Has it always been so? [E. Schuyler, *American Diplomacy and Commerce*, chap. 8; J. B. Henderson, *American Diplomatic Questions*, 471-500; W. J. Abbot, *American Ships and Sailors*, chap. 9; W. L. Marvin, *American Merchant Marine*, chap. 13.]

4. Describe the lumber industry in the colonies. Has it progressed since colonial days? [C. D. Wright, *Industrial Evolution*, chap. 6.]

5. Describe the character and the size of colonial vessels; the extent of their voyages and the kind of cargoes. [Marvin; Abbot.]

6. Description of whale fishing. [E. K. Chesterton, *Whalers and Whaling*, W. B. Weedon, I, chap. 11; T. Jenkins, *A History of Whale Fisheries*]

7. Description of cod fishing. [E. R. Johnson, et al., *History of Foreign and Domestic Commerce of the United States*, I, chap. 9; R. McFarland, *A History of the New England Fisheries*.]

8. How far west did the fur traders push? What kinds of furs did they get? [Crittenden, *The American Fur Trade of the Far West*.]

9. History of the Hudson Bay Company. [Beckles Willson, *The Great Company*; Encyclopedias.]

10. What is the etymological meaning of "manufacture"? Is the original or the modern meaning more applicable to colonial manufactures? [Century Dictionary.]

11. How large were the early manufacturing enterprises in the colonies? Why was so much pains taken to develop them? [J. L. Bishop, I, index, "Manufactures."]

12. What effect did the exclusion by Great Britain of New England's agricultural products have upon the development of manufactures and commerce in that section? [G. L. Beer, *Commercial Policy of England to American Colonies*, 389; W. B. Weedon, I, 142.]

13. Where was mining developed in the colonies? Are any metals obtained from those same sections today? Why? [Bishop, I, chaps. 17, 18; M. D. Swank, *History of Manufacture of Iron*, chaps. 9-11.]

14. Why did the colonies levy import duties against one another? Why do the States not do so today? Which is better?

15. Describe the domestic system of industry. [E. W. C. Taylor, *Factory System*; W. J. Ashley, *Economic History*; E. P. Cheyney, *Introduction*, 153, 185, 188, 220; E. R. A. Seligman, *Principles of Economics*, 92.]

16. Describe more fully the following colonial manufactures: printing, brewing, paper, glass. [J. L. Bishop, I, see index; E. Eggleston, *Commerce in the Colonies*.]

17. In a table indicate the chief products of the thirteen colonies, [Suggestions: What colonies produced tobacco, rice, rum, cotton, sugar, horses, codfish, naval stores, pig iron, beaver hats?]

18. Report upon the relation between the economic life of today and that of colonial times. [S. E. Forman, *The Rise of American Commerce and Industry*, chaps. 4 and 5, and pp. 53-58 ; H. U. Faulkner, *American Economic History* (rev. ed.), chaps. 3-5.]

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CHAPTER IV

THE SYSTEMS OF LABOR

The labor problem of the colonies was how to get the necessary supply of laborers rather than how to determine the rates of wages or conditions of employment. Every standing tree waiting to be converted into lumber or other products, every untilled field, every natural resource which might be exploited, constituted a demand for labor. How to meet this demand was the paramount problem, and in meeting it various methods were followed.

The growth of population.—During the seventeenth century the population of the English colonies in North America, after the first influx in 1630-40, grew but slowly. By 1640 there were only 25,000 whites in British North America, of whom 60 per cent were in New England and most of the rest in Virginia. In 1660 this number had increased to 80,000, the largest gains having been made in Virginia and Maryland, which now had one-half of the entire population. From this time on the Middle colonies began to increase in importance, and in 1690 had about one-fifth of the population of 200,000. A round half-million seems to have been reached, according to Bancroft, in 1721, and a million in 1743 ; by 1770 the two million mark had been passed.

It is impossible to say how much of this increase was due to immigration and how much to natural increase, but in view of the dangers and difficulties of emigration, it is probable that after the first settlements the increase was mainly natural, though there was some immigration of Huguenots and Germans. Franklin, when he estimated in 1755 that there were "near a million souls" in the colonies, thought that scarcely 80,000 had come from across the sea. Subsist-

ence was cheap, so that there was no check upon the rapid increase of the population, which doubled about every twenty-three years. The majority of this population was of English stock, and, where the elements were diverse, there was a steady and successful pressure upon the succeeding generations to make Englishmen of them. In 1775, Bancroft speaks of the colonies as inhabited by persons only "one-fifth of whom had for mother-tongue some other language than English." In New England, where the population was most homogeneous, it was computed that at the time of the Revolution 98 per cent of the population were Englishmen or of unmixed English descent.

A Jack-of-all-trades.—While practically every man in the early colonial period was a farmer, every farmer was at times also hunter and trapper, lumberman, sailor or mechanic. The pioneer settler, as later the frontiersman, supplemented his efforts in the fields by hunting and fishing as long as game abounded. With the growth of settlements and the disappearance of wild game, the colonist devoted his spare time to getting out rough lumber products, such as planks, staves, and shingles. These could be made during the long winter months, by the fireside of an evening, while the women spun or wove. On the coast ships were built, and from every New England town many a farmer's boy went on the fishing expeditions to the Newfoundland Banks. It was not long before these industries became so important as to call for the full time of those who pursued them. With the growth of towns, there was increasing opportunity also for division of occupations, but the farmer in the rural districts had to be a Jack-of-all-trades throughout the whole colonial period. He did a multitude of odd jobs for himself, such as repairing old buildings and constructing new ones, laying walls and stoning up wells, butchering pigs and cattle and curing and salting their meat, grinding grain, making ax-handles and brooms, staves and shingles, and even furniture, tanning leather and cobbling shoes. ¶

Even in the towns a man was accustomed to turn his hand

to almost anything that offered. Weeden gives an account of one John Marshall, who was a good typical specimen of such laborers. He "received about 4 shillings a day at Braintree from 1697 to 1711. He farmed a little, made laths in the winter, was painter and carpenter, was messenger, and burned bricks, bought and sold live stock. He was a non-commissioned officer in the Braintree Company, and a constable of the precinct. In one day he could make 300 laths."

As a result of this experience, in which, it should be noted, the boys and the girls of the family shared, the Northern farmer developed great versatility. The problem that confronted the colonial settler was to get a living for himself and family under the conditions that confronted him. But he was not only faced with the task of earning a living; he was also striving to raise his standard, and to accumulate capital. The home thus became a technical school for vocational training and also an institution for the inculcation of thrift and industry.

Scarcity of laborers in the colonies.—In contrast with the tasks to be performed in a new country, labor in the colonies was always a scarce commodity. To clear the land of trees, stumps, and stones, to cultivate the fields with the clumsy agricultural implements, to guard the growing crops against weeds and cattle, to produce food, to make clothing and household necessities, to cut roads through the forest, to build houses and barns, and perhaps to repel attacks of hostile Indians — all these things called for unremitting toil of the severest kind. On the small farms of the North the proprietor cultivated his own land, with the aid of his family, and "help" was sometimes employed on wages. But in the Southern colonies where there were large plantations and where large staple crops like tobacco were raised, there was constant need of additional laborers. As other industries grew up beside agriculture this need was intensified, and various systems of bringing laborers to America were devised.

Some of the immigrants who came to the colonies were without means or lacked the energy to engage in industry on

their own account, and hired themselves out as free laborers, but their number was never very large. Moreover, the abundance of free land and the large returns to the cultivator tempted most men to become independent farmers on a small scale rather than to remain hired laborers. The proportion of free laborers differed in the various colonies, but was always greatest in New England, where slavery had the slightest foothold, and where industry was the most diversified.

Labor co-operation.— Because of the scarcity of laborers who could be hired to work for pay, it was a general practice in New England, and also in the Middle colonies, for the colonists to exchange labor with one another. If a house were to be erected, a barn raised, or a ship built and launched, the settler called upon his neighbors to assist him in the larger operations that were beyond his strength or skill, or that required the associated effort of several workers. The typical event that called for this co-operative system of labor was a house- or barn-raising ; this was made a social occasion, the women attending to provide a bountiful repast, while the men strove with one another in a spirit of emulation. It did not take long at such a time to erect the frame, the rafters, and the ridge-pole of a building. Later, the more usual method for a man who wished to build a house was to make an agreement with a carpenter or a mason for so many days' work, the owner working with him under his direction.

While labor was still very scarce and even the voluntary co-operation of neighbors could not always be depended upon, legislation provided for the impressment of labor for such necessary services as harvesting crops. In New England artificers and mechanics might be compelled by the constable to leave their crafts and assist in the harvest-fields of their neighbors. The obtaining of the food supply thus ranked with military protection. In the South there was a larger proportion of servants — the term "servants" included not only hired laborers, but also apprentices and indentured servants — and consequently the exchange of labor between

independent proprietors or plantation owners was never so important.

Indentured servants.—Of “unfree” laborers there were in the colonies two main classes : indentured servants and slaves. The indentured servants again were of two kinds — those whose servitude was voluntary and those who servitude was involuntary. Voluntary servitude was based upon a free contract with a company or a person for a definite term of service in return for the payment of the servant’s transportation and his maintenance during the period of service. The indentured servants were free persons who emigrated for the purpose of improving their condition ; at first, they came chiefly from England, but later large numbers were brought over from Ireland, Scotland, Wales, and Germany. Many of these bond servants sold themselves into servitude to the agents of planters, or to shipmasters or emigration brokers, or were enticed on board a departing ship by a so-called “spirit” or “crimp.” This class of servants comprised the majority of those in servitude, and was confined chiefly to the Middle colonies ; in Maryland there seems to have existed a variation in the so-called “free-willers.” They were transported on the condition that they be allowed a certain number of days in which to dispose of themselves to the best advantage ; failing in this their services were sold to pay for their passage. In general, the servants transported before 1650 were bound for long terms of from seven to ten years or more ; after the settlement of New York, New Jersey, the Carolinas, and Pennsylvania, the demand increased and the term of service was reduced to four years.

Involuntary servitude.—The other class was composed principally of paupers, vagrants, “loose and disorderly persons,” and criminals, who were sent to the colonies by royal order or court sentence, or later by judges under the English penal statutes. The transportation of these persons to America seems to have been dictated at first largely by motives of humanity. There were at this time three hundred crimes in the English calendar for which capital punish-

ment was inflicted, and justices often mercifully substituted transportation for death ; at the same time the need for men in the colonies afforded an excuse for evasion of the death penalty. During the eighteenth century, by virtue of acts of Parliament, a convict was permitted to have his sentence commuted, in case of the death penalty, to fourteen years' service, while a seven years' service might be substituted for whipping and branding. While most of the convicts thus sent over belonged to the criminal class, many of them were guilty of nothing more serious than debt, and some were political prisoners who had engaged in some rebellious movement.

Acts were passed by the colonies designed to prevent the importation of convicts, and in 1671 an order was passed in England to put an end to the traffic. It seems not to have been observed, however, and in 1717 Parliament enacted a statute against the protests of the Virginia merchants providing for the transportation of convicts to America. The provinces of Virginia and Maryland received most of these convicts, although they were not unknown elsewhere. Many of the planters preferred their services to those of the bond servants, as their terms were longer and their rights fewer,

It is impossible to state the proportion of laborers belonging to the two classes, but the indentured servants were undoubtedly in the majority. Fifteen hundred a year is the estimate of Berkeley for Virginia in 1664 ; seventeen years later, it was stated that ten thousand persons were annually spirited away from Great Britain by kidnappers. In this same year there were in Virginia six thousand servants as against two thousand slaves. } Commons estimates that probably one-half of all the immigrants of the colonial period landed as indentured servants. }

Treatment of servants.—The treatment of servants was as varied as the character of the masters. At first, a sort of good fellowship seems to have existed between masters and men, but as the numbers became greater a mass of legislation grew up to regulate their relations. The general condition

of the bond servants was certainly a hard one, as is shown by the character of the laws to protect them. No servant could be sold out of the province in which he agreed to serve, without his consent ; he must be furnished with sufficient and wholesome food, clothing, and lodging. It appeared that the food allowed was often a coarse diet of Indian meal and water sweetened with molasses, while lodging and clothing were poor and insufficient. Finally, the law provided that if a servant fell ill during his service, he must be cared for ; the sick servant was often neglected, lest the doctor's charges should exceed the value of his remaining service. The servant was also protected against unjust cruelty and bodily maiming ; it must be remembered, however, that this was an age of flogging, and corporal punishment was meted out to soldiers and sailors, criminals, and children as well as to servants.

On the other hand, the interests of the master who had invested his capital in servants were even more carefully protected. The great danger to which he was exposed was the loss of runaway servants, who fled to escape service or were tempted away with higher wages by rival employers. Both the runaway and those who harbored him were punished by severe penalties ; ordinarily a servant who ran away was compelled to serve double time for the period missed.

Advantages of white servitude.—In the early colonial days when labor conditions were unsettled and labor scarce, certain advantages doubtless existed in a system of servitude for white servants. In the first place, it permitted the organization of labor under intelligent direction, for definite purposes. The long terms of service with contract labor introduced an element of certainty, which was very important for those undertaking rather hazardous enterprises in a new country whose return was distant. It had generally the effect of an industrial or agricultural apprenticeship, and provided for the development of a class of small independent proprietors. Until well into the eighteenth century, when it was gradually supplanted by the system of slavery, it furnished

the larger part of the labor supply of Virginia, Maryland, and of Pennsylvania.

While at first many of these laborers belonged to a low class, some of them came from the educated and even the upper classes. At the end of their terms of service they generally became free laborers or independent proprietors and were merged in the white population of the colonies, often becoming highly respected citizens. In Pennsylvania and New Jersey redemptioners, that is indentured servants whose terms had expired, were granted fifty and seventy-five acres of land to cultivate in their own right. On the other hand, it must be said that the moral influence of the system was bad ; the immorality of women servants was a subject of frequent complaint and legislation, while the system of kidnapping and selling the labor of young boys, as well as the abuse of power by harsh masters, had a harmful effect.

The early slave trade.— More important and far-reaching in its effects than the institution of white servitude was the introduction of Negro slavery into North America. Slavery and the slave trade have existed ever since a settled life made the compulsory service of captives more desirable than their extermination. The gradual progress of civilization had, however, led to a decrease in the enslavement of Christian peoples, and would doubtless soon have completely abolished it had not America been discovered. Negro slavery had long existed in Africa, and for fifty years before the discovery of America a regular traffic in slaves between Europe and Africa had been carried on by the Portuguese. There was, however, no place for slaves in Europe, except in the domestic service of the wealthy, but in the new world there was opened a new opportunity for their disposal and a new field for their labor.

Introduction of slavery into America.— When Spanish slaveholders emigrated to the West Indies, they brought their Negro slaves with them, and while at first these were limited to those instructed in the Christian religion, the development of sugar growing and the need for labor soon

broke down this restriction. The native Indians, too, were enslaved, but proved ill adapted to the hard labors required by their severe taskmasters. At first the slave trade was carried on by the Portuguese and the Spanish, but later the Dutch and the English (1562) engaged in the traffic. Thus for a century prior to the settlement of the Jamestown Colony slavery had existed in the West Indies and a regular traffic in slaves had developed between the islands of North America and Africa. It was very naturally introduced into the English colonies on the continent from the West Indies ; later a direct traffic with Africa sprang up.

In 1619 a Dutch privateer landed twenty Negroes at Jamestown ; the number increased but slowly, however, and in 1670 there were only two thousand slaves in Virginia. Beginning with the settlement of Charleston, South Carolina, in this year, and the introduction soon afterwards of rice culture, an economic basis was furnished for slavery. At first most of the slaves were supplied by the Royal African Company of England, but after 1688 the trade was thrown open, and many New England merchants engaged in the traffic. The first shipload brought into Massachusetts was indeed returned at public expense, but as the West Indian trade increased in volume and importance the early scruples were overcome by the profits secured. During the eighteenth century a three-cornered trade was developed by New England, by means of which molasses was brought from the West Indies to New England, where it was manufactured into rum ; this was taken to Africa and exchanged for slaves, who were transported to the West Indies or the Southern colonies, where they were sold. The trip between Africa and the West Indies was called the "middle passage," and was attended by frightful mortality and suffering of the slaves.

It is difficult to ascertain even approximately the number of Negroes whom the slave traders carried off from Africa to the new world. At the beginning of the eighteenth century the total number carried each year to all the colonies by British vessels was estimated at 25,000 ; from 1713 to 1753

it ranged between 15,000 and 20,000. In 1771 almost two hundred British vessels were engaged in the traffic, carrying annually 47,000 slaves from Africa. The number of Africans shipped by all nations was estimated at 97,000 in 1768. Only a small part of these found their way to the thirteen English colonies.

Distribution of slavery.—Slavery existed in all the colonies, but to a very different degree in different sections. In New England it had obtained the smallest foothold and was disappearing, not so much by reason of a moral sentiment against it as because, as a result of the varied industrial development of that section, it was economically unprofitable. The Quakers of Pennsylvania were opposed to slavery, but in New York and New Jersey from 8 to 10 per cent of the population was composed of slaves, who were treated with great leniency. South of Mason and Dixon's line the situation was quite different. Of the 400,000 slaves in the colonies in 1760, three-fourths lived in the South; the proportion in the different colonies varied from 30 per cent of the population in Maryland and 40 per cent in Virginia, to 60 per cent in South Carolina.

In the tobacco colonies the treatment of the slaves was patriarchal in character; but in the rice fields of South Carolina the worst excesses were found. Here the pestilential heat of the swamps, which drove the planters for relief to the seashore, proved ultimately fatal to the strongest Negroes, who were forced to work at the severest labor under brutal overseers. It was found to be more profitable to work the slaves until they were worn out and then get fresh supplies rather than to spare them; the new slaves were usually obtained from the West Indies or direct from Africa, and were consequently less easily handled than the American-born Negroes of Virginia. The constant fear of uprisings, because of the greater numbers of the slaves, and their inclination to run away, led to the harshest legislation against them. Herded together in gangs, with few women and no home life, they showed slavery at its worst.

The attitude towards slavery.—The colonists were at first opposed to the introduction of slavery and various acts were passed, in Massachusetts and Virginia, in Providence and Georgia, forbidding or restricting it. Among the English, however, by whom the slave trade had already long been carried on with the West Indies, there were no such scruples. About 1663 a British Committee on Foreign Plantations declared that “black slaves are the most useful appurtenances of a plantation.” Seventy years later the Lords Commissioners for Trade and Plantations stated that “the colonies could not possibly subsist” without an adequate supply of slaves. Laws passed in the colonies to restrict the slave trade were generally disallowed by the crown, and royal governors were warned that the colonists would not be permitted to “discourage a traffic so beneficial to the nation.” The first effect of the introduction of servile labor indeed was to aid in the rapid clearing of the land and the production of new wealth. Without the system of slavery and the sister institution of white servitude, it may be said that the development of the South would have been greatly retarded and very different in kind. Gradually, as it was seen to be profitable, the objections of the colonists died away, and there was little scruple about owning slaves or engaging in the slave trade, except among the Quakers in Pennsylvania.

The organization of industry.—Thus far the kinds of laborers have been described, but the character and organization of industry must also be mentioned. Most of the labor was agricultural, since this was the principal occupation, but as towns grew and increased in size, industry began to be separated from agriculture and industrial workers to become more important. Industry was for the most part in the custom-order stage during the early part of the colonial period ; the home of the worker was the workshop and here goods were produced upon order from the customer. The mechanic was both producer and merchant. Gradually, as the population increased, as towns were established, and as the market grew in size, the master workman gathered jour-

neymen about him. He also, in addition to custom or "bespoke" work, began to produce cheaper goods for sale without waiting for orders. This retail order stage had been reached by the time of the Revolution.

In addition to these stationary workers there were also itinerant workers, especially in those industries which required only hand tools and skill, like the itinerant shoemaker or tailor. The itinerant worker went from house to house, where he worked up the raw material belonging to his customers in return for board, lodging, and a small wage. In those industries, however, where any considerable capital was required, as in blacksmithing, weaving, baking, etc., the worker set up his own shop and the customer came to him. With the growth of industry and of better means of transportation, the itinerant mechanic tended to become a stationary worker.

Regulation of industry.—As long as goods were produced only on order, as "bespoke" work, the master workman found it to his interest to turn out only good wares in order to hold his customers. But when custom work began to be displaced by "shop work," or the making of goods for sale in the general market without waiting for orders, then the danger arose that cheap and poorly made wares would be placed on the market. To guard against this, inspectors, supervisors, and other similar officers were appointed in the various crafts to insure the quality of the goods produced. So, too, when master workmen began to hire journeymen, disputes over wages arose. But these were less important than the regulations of prices and quantity, which were designed to protect the consumer. Perhaps the most general colonial regulation, which covered price, wage, quality and weight, was the "assize of bread." Thus Massachusetts, in 1696, provided that the weight of the penny loaf should vary according to a fixed scale as the price of wheat moved up or down, and although the makers frequently complained that the assize did not permit them to earn a living wage, regulation rather than competition was held to be necessary

to protect the interests of the general public. This was in harmony with the mercantilistic ideas of that period.

SUGGESTIVE TOPICS AND QUESTIONS

1. What conclusions did Malthus reach from a study of the growth of population in the American colonies? [T. R. Malthus, *The Principle of Population*, chap. 6.]

2. Is the population increasing as rapidly in the United States today as it did in colonial times? Is there any difference in the rate of increase in different parts of the country?

3. Make a graph showing the growth of population from 1640 to 1790.

4. What is said in the Constitution about involuntary servitude? Was this aimed against the colonial practices?

5. It has been said that the institution of human slavery was the greatest advance ever made in civilization. Comment on this statement.

6. Why did the Negroes make better slaves than the Indians?

7. What nation do you think was responsible for slavery in the colonies? the Spanish? the Dutch? the English? the colonists? [P. A. Bruce, II, chap. 11; W. B. Weedon, II, chap. 12.]

8. What was the "middle passage" in the slave trade? Why so called? Describe its horrors. [Weedon, II, chap. 12; W. J. Abbot, chap. 3; John R. Spears, *The American Slave Trade*.]

9. Did slavery spread rapidly or widely in the colonies?

10. Does slavery exist anywhere in the world today? [Encyclopedias.]

11. Is slavery necessary? Is it necessary that there should be domestic servants? Would society be better or worse off if there were none? [A. E. F. Schaffle, *Quintessence of Socialism*, 111-112.]

12. Was there a considerable number of domestic servants in the colonies? Why? [L. M. Salmon, *Domestic Service*, chap. 3.]

13. What is "coolie labor," and where is it used? What is peonage? Are those any more excusable than slavery?

14. Were there any tramps in the colonies? Why are there any today in the United States? [A. G. Warner, *American Charities*, chap. 8.]

15. What objections are there to sending criminals to penal colonies? [F. H. Wines, *Punishment and Reformation*, 162-171; E. F. DuCane, *The Punishment and Prevention of Crime*, chap. 5.]

16. Was the practice of "binding out" the children placed in poor-houses like that of indenting servants?

17. Has the lot of the servant improved in the last two hundred years? Is it better here than in Europe? Why?

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CHAPTER V

TRADE AND EXCHANGE

The transportation problem of a new country is always a difficult one. To build good roads and bridges or canals requires much time and the investment of large amounts of capital. But the transportation needs of the colonists were immediate, if they were to market their products.

The currency problem was not dissimilar. Gold and silver are an expensive form of money, and the problem of the colonists was how to carry on their exchanges with the least expensive media.

River and coastwise traffic.—During nearly all the colonial period the majority of the colonists lived within reach of navigable water; separated by dense forests and tribes of hostile Indians, they found this the safest and easiest highway. In New England the fall line is comparatively near the coast, and communication could not be carried far up stream, except on the Connecticut River, which is navigable as far as Hartford. But the lack of rivers was compensated by the presence of Long Island Sound, whose long stretch of sheltered water greatly favored the coastwise trade. New York had the finest navigable river in the Hudson, which



THE FALL LINE OF RIVERS

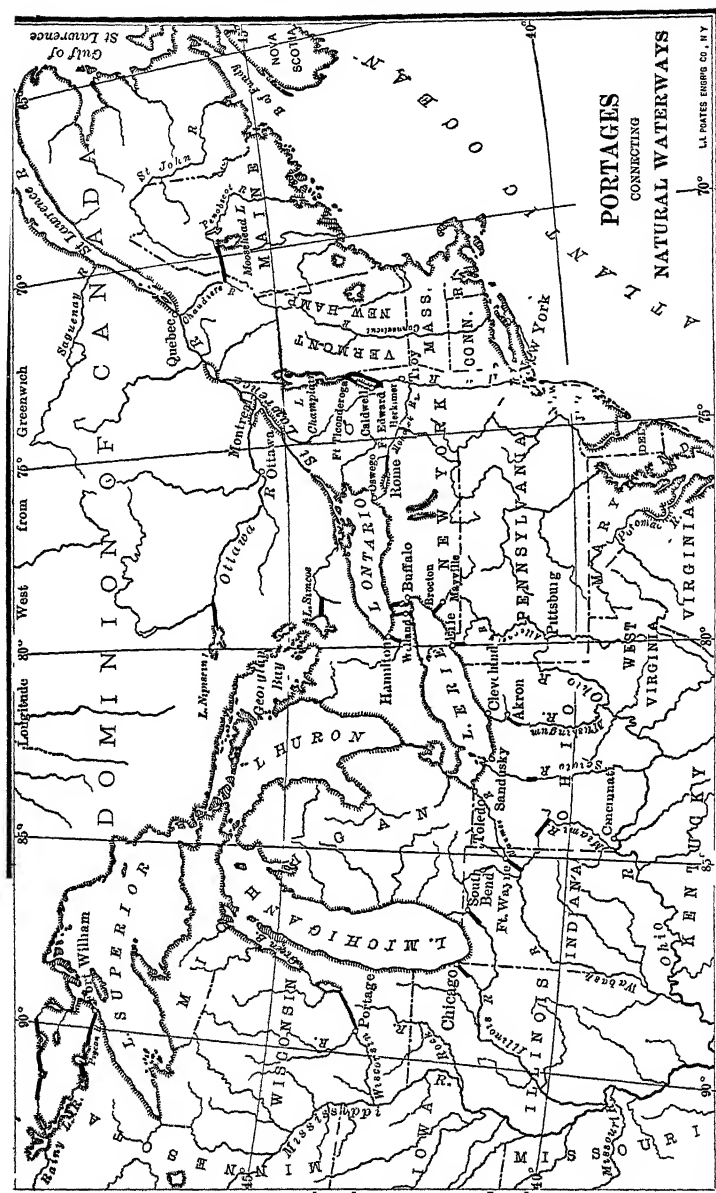
Towns sprang up at the fall line of most of the rivers, because of the presence there of water power and also because of the interruption to navigation at that point.

was navigable for ocean vessels as far north as Albany, one hundred fifty miles from its mouth. Farther south the broad bays and deep rivers brought even the inland plantations within easy reach of seafaring vessels.

Rivers were the only highways into the interior, and when the trapper and trader pushed beyond the mountains they followed the river courses. With the light birch-bark canoe it was possible to penetrate far inland on the interior streams. To cross the mountains, however, it was necessary to pass from the rivers flowing into the Atlantic to those emptying into the Mississippi. The portage thus became an object of the greatest interest and value to the early colonist and the fur trader. Forts were early established on the important portages, which were always the lowest and easiest ways over the watersheds. More recently roads and railways have followed the same lines, and early Indian portages are now marked in many places by populous cities.

For more than a century travel and transportation in America were almost confined to water. Most of the trade between the colonies was carried on by sea. Convenient harbors were numerous, and sailing vessels plied between New England towns and those of the Middle and the Southern colonies ; during the eighteenth century the coastwise trade became very important. All the principal cities of colonial times were seaports, as Boston, Newport, New York, Philadelphia, Baltimore, Charleston, and Savannah. Although the excellence of the water communication undoubtedly delayed the building of improved roads, it must be regarded as a great economic blessing to the struggling colonists, as it saved them much wearisome labor.

Colonial roads.—As the population pushed inland, other means of communication than those by water became necessary, and Indian trails were used, being generally widened into bridle paths and later into roads for the use of wagons. Up to the time of the Revolution the roads were very poor, being constructed without system by the different localities ; although in Massachusetts the General Court in 1639 had



Along the line of the Indian portages hunters and traders first penetrated into the wilderness. Towns later sprang up at these points.

ordered each town to construct a highway to connect with that of the adjoining town. The colonial road was the ordinary earth road, deep with dust in summer and with mud a foot or more during the thaws of winter and spring. Wagons were rare, but sledges were used or journeys were made on horseback. In the North it was possible to travel with comfort or to go long distances by land only in the winter, when the snow made sleighing possible. The cost of transportation was enormous, and usually prohibitive beyond one



TRAVEL IN THE COLONIES IN 1660

hundred or one hundred fifty miles, except for articles of the first necessity, as salt and iron, or of small bulk, as tea. The charge for hauling a cord of wood twenty miles was \$3, for hauling a barrel of flour one hundred fifty miles it was \$5. In such circumstances passenger traffic was infrequent and men lived and died without traveling twenty miles from home. Communities in neighboring counties were quite isolated from one another.

Travel was not only uncomfortable and expensive; it was positively dangerous as well. Few bridges existed in the colonies, and the shallower rivers had to be forded, while the broader or deeper ones were crossed by means of ferries. It was stated that in Pennsylvania at the end of the colonial period it was not uncommon for men to make their wills before starting to a State convention. Travel by stagecoach did not become important until the beginning of the nineteenth century; the first stage between New York and Philadelphia was not established until 1756, and the trip took 3 days for a distance of 90 miles.



Philadelphia STAGE-WAGGON, and New-York
STAGE BOAT performs their Stages twice a Week.

JOHN BUTLER, with his wagon, sets out on Mondays from his House, at the Sign of the Death of the Fox, in Strawberry ally, and drives the same day to Trenton Ferry, when Francis Holman meets him, and proceeds on Tuesday to Brunswick, and the passengers and goods being shifted into the waggon of Isaac Fitzrandolph, he takes them to the New Blazing-Star to Jacob Fitzrandolph's the same day, where Rubin Fitzrandolph, with a boat well fitted, will receive them, and take them to New-York that night. John Butler returning to Philadelphia on Tuesday with the passengers and goods delivered to him by Francis Holman, will again set out for Trenton Ferry on Thursday, and Francis Holman, &c. will carry his passengers and goods, with the same expedition as above to New-York. Toctf.

From Dunbar's *History of Travel in America*

TO ADVERTISE A "STAGE-WAGGON"

This advertisement was in a New York newspaper in 1750. The improvement of the roads permitted the substitution of a comfortable stagecoach for this primitive wagon. The fast stagecoach between New York and Philadelphia—"the flying machine"—introduced in 1778, reduced the time to one and one-half days.

Domestic commerce.—The first trade in the colonies was carried on, not among the colonists themselves, but with the Indians. From them the settlers obtained furs and skins in exchange for blankets, shirts, beads and trinkets, and other manufactured articles. The colonists were forbidden by the

British government to furnish the Indians with firearms, powder, or rum, but the Indian traders refused to be bound by legislation. In the Mohawk valley a musket could be bartered for twenty beaver skins.

With the development of the fishing industry in New England, a steady exchange took place of dried and salt cod for corn, salt pork, and other supplies. Fish, meat, lumber, and such manufactured goods as shoes and woolens were sent to the Southern colonies and there exchanged for tobacco, hides, tar and other naval stores. A considerable coastwise trade existed, especially between the Northern and the Southern colonies, based upon climatic differences. Neighboring communities, however, whose products were similar, did not find it profitable to trade. Division of occupations or of labor had not yet proceeded far enough to provide materials of commerce on any considerable scale. The lack of adequate transportation facilities also handicapped internal trade, as did the absence of a universally recognized medium of exchange.

Foreign commerce.—Far more important during the colonial period than the inland or coasting trade was the foreign commerce of the colonies. The Atlantic Ocean was the great thoroughfare of commerce and served as an avenue of approach rather than as a barrier to foreign countries. The surplus products of the colonists, such as fish or tobacco or lumber, were of value only if they could be exchanged for other commodities not produced in the colonies. Colonial products were at the same time in great demand in Europe. Such were tobacco, rice, wheat, fishery products, furs, dye-stuffs such as indigo, timber, and naval stores. America was the main source of supply for several of these and they were eagerly bought. During the seventeenth century the prevalence of piracy interfered with ocean trade ; but after its suppression, about 1725, the foreign trade of the colonies kept expanding steadily until, by the end of the colonial period, the total exports from all the colonies amounted to \$20,000,000. So insignificant was the world's trade at that

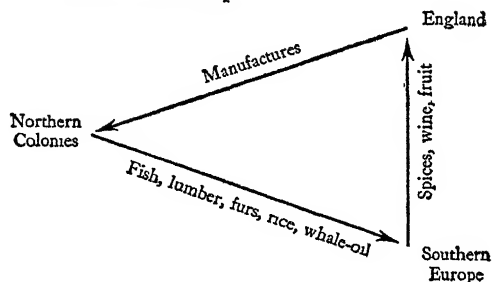
time that this comprised one-seventh of the total commerce of Great Britain, and was considered sufficiently important for England to reserve it to herself.

The importance of foreign commerce differed greatly in the different colonies. The absence of a staple agricultural export and the profitableness of the fisheries and of ship-building early made New Englanders the leading carriers of colonial commerce. On the other hand, while the tobacco trade of the Southern colonies gave employment to some 4,000 seamen, few of them lived in that section. Until about 1750 Boston was the most important seaport, sending out five or six hundred vessels annually in the foreign trade alone. Newport ranked second and New York third, with only half as many ships as Boston. About the middle of the eighteenth century, Philadelphia gained the leading place as the chief port of North America, with an export trade of more than \$3,500,000 a year and a total foreign commerce exceeding \$5,000,000. Her situation made her the principal market for the meat and the flour of the interior country.

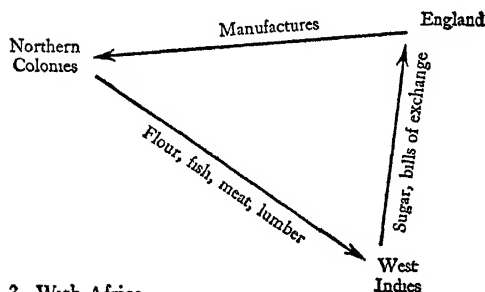
Exports and imports.—About one-half of the trade was carried on with Great Britain and about one-quarter with the West Indies, while France and Spain also furnished markets for colonial produce. A small, though lucrative trade was carried on with Africa. Fish, lumber, furs, and tobacco were the leading exports in the seventeenth century, to which were added in the eighteenth such articles as whale oil and whalebone, meat, rum, rice, and naval stores. In return the colonists received woolen and linen goods from England, iron and wool from Spain, spices from the Mediterranean countries, and wine and fruit from Madeira and the Canary Islands.

Of special importance was the trade with the West Indies. Here was found a convenient and profitable market for the flour, fish, meat and lumber products of New England, which were excluded from England itself, and from these islands the colonists obtained sugar, molasses, dyestuffs, and other products of a tropical climate. The molasses formed

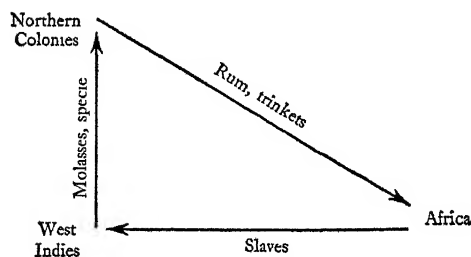
1. With Southern Europe



2. With West Indies



3. With Africa



"THREE-CORNERED TRADE"

the basis in Newport and Boston of a profitable rum-distilling industry, the product of which was shipped to Africa and bartered for slaves, who in turn were taken to the West Indies in pay for more molasses. This constituted the lucrative "three-cornered" trade, by means of which the colonists

were enabled to buy largely of English manufactures. Such trade was typical of the roundabout voyages, which sometimes would last several months or even a year or more, while the captain carried the commodities of one section to the market where he thought he could dispose of them to the best advantage ; if he took other goods in exchange he had to dispose of them in turn. Especially desired was payment in specie, which would be used to buy goods in England where the barter method broke down. The accompanying charts show the importance of specie in the "three cornered" trade.

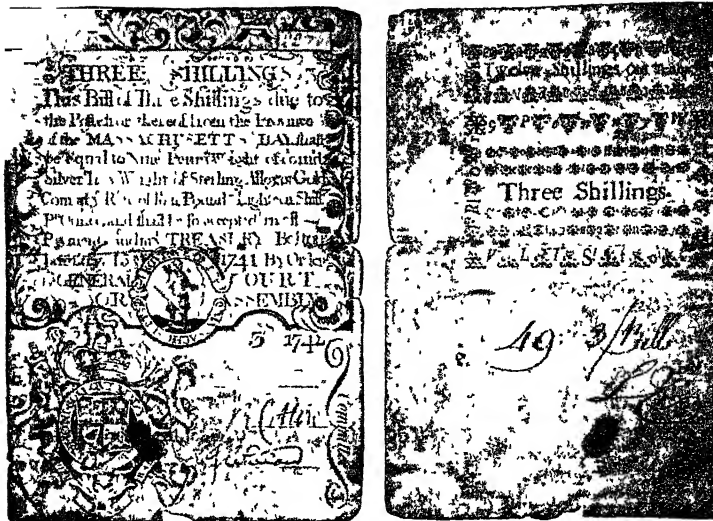
Agencies of exchange.— All exchange during the colonial period was slow and cumbrous. The important institution of trade was the general country store, which collected the surplus products of the colonists and gave them in exchange the wares imported from abroad. Direct barter was the usual form of exchange, as money was scarce, and the storekeeper acted as the agent in effecting these exchanges. Markets were generally to be found in the cities, to which the farmers brought their country produce twice a week. Fairs were also held once or twice a year, at which foreign merchandise was sold as well as local wares.

As might be expected, the postal facilities in the colonies were of the most primitive character ; letters and packages were generally carried by private messengers at high rates. Postage rates for a single letter ranged from eight to twenty-five cents, according to the distance, and the charges were paid by the recipient. Mails were both irregular and infrequent. An important advance was made when a general postal system was inaugurated by the Second Continental Congress on July 26, 1775. Benjamin Franklin was placed at the head, and a line of posts established from Falmouth (the present Portland) in Maine to Savannah, Georgia. This was gradually extended during the next few years and in 1789 was placed under the control of the postmaster general.

Colonial currency.— There was very little metallic money in the colonies, and what was brought over by incom-

ing settlers was speedily sent back to pay for more valuable forms of capital. No gold or silver mines existed in the colonies, and consequently metallic money could be obtained only by trade from other countries. But there were several reasons why this was difficult at that time : in the first place the colonists were poor and at best would have had but little money. They were situated in a new country, to develop which they needed other forms of capital, such as tools, plows, household utensils, and manufactured goods, more than they did money, which is only one form of capital or a tool of exchange. And finally the prevailing mercantilist notions on the balance of trade made other nations disinclined to pay for colonial products in specie. Moreover, what little metallic money remained in the colonies circulated very slowly, and the sparseness of settlement and difficulties of exchange made it therefore less effective than the same amount would be today. In these circumstances the colonists proceeded to use substitutes, and in this endeavor to find a cheap and satisfactory substitute for the expensive precious metals is to be found the keynote of colonial currency problems.

Commodity money.— At first various commodities were used, which were often given the legal tender quality. Thus tobacco in Virginia and Maryland, rice and cotton in the Carolinas and Georgia, corn, cattle, peltry, and beaver skins in the Northern colonies — in each case the staple commodity of the community was selected, for which there existed a ready market and a general demand. In New England the colonists found wampum, strings of cowrie shells, already in use among the Indians, and availed themselves of this, especially in the fur trade with the Indians, for half a century. Debts were settled, taxes collected, and church tithes paid in these articles. All of these commodity moneys were subject to serious disadvantages, such as fluctuation and depreciation in value, and the loss involved in storing or hoarding them. Their unsatisfactory character consequently led to an early resort to other methods.



MASSACHUSETTS COLONIAL CURRENCY

Massachusetts, together with the other colonies, issued bills of credit for the double purpose of providing a medium of exchange and of replenishing an empty treasury without the necessity of resorting to taxation. There were large over-issues and consequent depreciations, and in 1742 a new issue was authorized, called "new tenor" bills, in which the "old tenor" bills were to be redeemed at the rate of four to one. This is indicated on the reverse of the bill shown. After a mad career of paper money issues, Massachusetts finally resumed specie payments in 1750 and redeemed the outstanding bills in silver.

Paper money.—To meet the need of a larger circulating medium for colonial exchanges paper money was early issued by the colonists. The first issue was made by Massachusetts in 1690, to pay the soldiers who had returned unsuccessful and penniless from a military expedition against the French in Quebec. This was not only the origin of paper money in America, but also in the British Empire, and almost in the Christian world. At first the notes depreciated, but were soon brought to par by being made receivable for taxes at 5 per cent advance over coin, and the promise of redemption in twelve months. This method of anticipating taxes was so successful that a second emission was made by Massachusetts in 1709, and this example was followed by South Caro-

lina, Rhode Island, Pennsylvania, and finally by all the colonies except North Carolina. The experience was almost everywhere the same : over-issue, delay and postponement of redemption, depreciation, and finally in some cases repudiation. And yet with all its evils, the practice was persisted in during the colonial period, and repeated again by the Continental Congress because, bad as it was, it seemed cheaper than gold or silver, and was better than nothing. Even such shrewd and successful business men as Benjamin Franklin and John Dickinson advocated the issue of paper money by the colonies as a matter of economic policy.

Banks.—Commercial banking as we know it today is a comparatively recent development and was unusual in the seventeenth or the eighteenth century. The banks which were established in the colonies have been described by one writer as “a batch of paper money.” Perhaps the best known colonial bank, which was sufficiently typical to serve as an illustration of all, was the Land Bank of Massachusetts. When the British government in 1739 instructed the governor of Massachusetts to put a stop to the issue of paper money, some of the people feared that there would not be enough money to carry on their business and they accordingly organized a so-called Land Bank which was to issue bank notes upon security of land or commodities. This was opposed by the merchants of Boston and others, who finally invoked the authority of Parliament to put an end to it. In 1720 Parliament had passed the “Bubble Act,” directed against speculative and fraudulent companies, and now, in 1741, they declared that the provisions of this act applied to the colonies.

As the power of coining money, and hence of issuing paper money, was a royal prerogative, these acts of the colonists were always regarded with jealousy by the crown. In 1751 Parliament forbade the issue of bills of credit in New England, and finally, in 1764, it extended this prohibition to the remaining colonies. The quarrels over this subject between colonial legislatures and royal governors, who, acting under

royal instructions, usually disallowed paper money issues, later formed one of the important though little emphasized causes of disaffection between the colonies and the mother country.

Bills of exchange.—Commodity money or “country pay” might serve in local transactions and paper money could be used in those carried on within the country, but the only acceptable money in foreign trade is gold or silver. Since there was a scarcity of metallic money in the colonies, they had to resort to substitutes in this field also. The difficulty was solved by the use of bills of exchange. For instance, a New England trader might sell a cargo of salt fish or of lumber to a West India sugar planter, and receive in payment a bill of exchange or order drawn upon a merchant in London to whom the planter had sold his sugar, directing the merchant to pay a certain sum of money. The trader could then use this bill of exchange as a means of payment with which to buy manufactured goods in England, or he could pass it on to some other merchant in the colonies. A large part of the overseas trade of the colonies was carried on through the use of bills of exchange.

SUGGESTIVE TOPICS AND QUESTIONS

1. Shaler says the Appalachian Mountains presented to the early colonists “a barrier as impassable as the Alps.” What effect did this have on the settlement of the colonies, on trade, and on westward expansion? [E. C. Semple, *American History and its Geographic Conditions*, chap. 3.]
2. Were there any considerable settlements during the colonial period that were not accessible by water? Where?
3. Do you know of any communities in the United States today which are without railroads, trolley lines, bus lines, or automobiles? To what extent do exchange of goods and social contacts take place?
4. How could one go by water inland (with portages) from the Atlantic to the Gulf of Mexico? to the Pacific? [L. Farrand, *Basis of American History*, chap. 2.]
5. Did the comparative isolation of the colonies exert any effect on the growth of ideas of political independence?
6. Why were the colonists so eager to issue paper money? Why did the English government object? [H. White, *Money and Banking*, 103-

114 ; C. J. Bullock, *Monetary History of the United States*, part I, chaps. 3, 4 ; W. B. Weedon, II, 473-491.]

7. Give the history of the Massachusetts "pine-tree" shilling. [A. McF. Davis, *Currency and Banking in Massachusetts* ; E. Eggleston, *Commerce in the Colonies*.]

8. Could a country dispense more easily with money or with roads ?

9. Why should people be willing to accept pieces of paper, even if stamped by the Government as money, in exchange for their products ?

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HISTORICAL NOVELS

Ingraham, J. H., *Capitain Kyd*. Story of a famous pirate. 1675.

Roberts, C. G. D., *Barbara Ladd*. Scene is laid in Connecticut and New York. 1769-76.

Stockton, Frank R., *Buccaneers and Pirates on Our Coasts*. 16th and 17th centuries.

CHAPTER VI

PROGRESS OF THE PEOPLE

The object of the varied economic activities described in the preceding chapters was after all to provide the people with the means of subsistence and if possible to raise the standard of comfort. A standard of living or of comfort differs greatly from time to time and among different people at the same time. It is conditioned by the stage of technological progress, by the natural resources, and by the abilities of the people. That which was attained during the colonial period must therefore be judged by the standards of that period, and must not be compared too closely with that of today. It comprises a great many items, the most important of which may be briefly considered. It is, however, necessary to point out first that there was not one standard, but several, for the people belonged to different gradations of wealth and station, who lived in very different style.

Classes in the colonies.—We must first disabuse ourselves of the idea that social equality prevailed in the colonies or that the ideal of democracy was realized. The social structure of the New World reproduced most, if not all, of the inequalities of contemporary England and Europe. The dominant class was made up of rich merchants and the professional groups in New England, of traders and great landed proprietors in the Middle colonies, and of planters in the South. This class maintained its position of power by property and religious restrictions on voting and office holding, so that only a small proportion of the adult male population had the right of suffrage. The institutions of entail, which made it impossible for the owner of land to sell or give it away, and of primogeniture, which provided that the oldest son should inherit the estate, perpetuated wealthy families. Class distinctions were rigidly enforced in dress, in titles, and even in seating worshippers in church. Members

of the superior class were addressed as "Mr." or "Gent." ; those lower in the scale were saluted as "Goodman" or "Goodwife" ; while the common man was known by his first name only.

Next in order below the dominant class stood the farmers, owners of small freeholds. This group formed the bulk of the population in New England and the Middle colonies and the back country of the Southern colonies. They were industrious and ambitious, though often illiterate, and throughout the colonial period steadily pushed their way up toward greater power and improved standards of living.

The third layer of the social order was made up of free artisans and laborers. As population increased and towns grew there appeared a class of free artisans who worked for hire. This class included carpenters, masons, tilers, millwrights, wheelwrights, ship-carpenters, thatchers, and many others. The proportion of free laborers differed in the various colonies, but was always greatest in New England, where slavery had the slightest foothold and where industry was most diversified. In spite of the scarcity of labor, wages of hired labor were held down by legislation. In accordance with English custom provision was made for fixing wages and prices by law, or giving the town authorities power to fix wages. This group was somewhat more restless than the farmers, and was progressive and often radical.

Below the level of legal freedom stood two other groups — the indentured servants and the slaves. It is not necessary to describe them further at this point, except to note that, during the period of their bondage, they were excluded from the enjoyment of even such rights as the free laborers enjoyed.

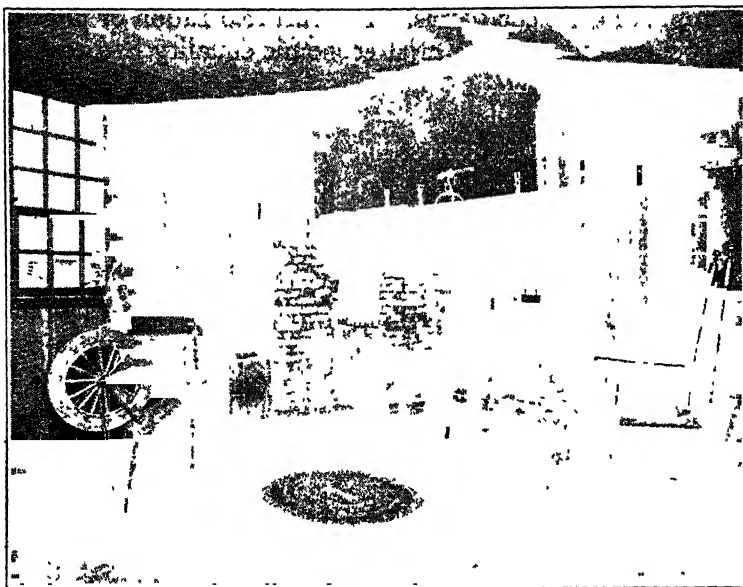
From what has just been said it is evident that the social structure of the colonies failed to realize the ideal of political, social, or economic equality. But society in the New World, removed from artificial trammels and exposed to new conditions, tended to break down class distinctions and afforded to able and industrious members of any group an opportunity

to improve their conditions. The full realization of political democracy and of substantial economic equality had to wait, however, until a later period.

Houses and furnishings:— The first shelters were of the rudest and flimsiest construction, hardly worthy to be called houses. "Our houses and churches," wrote the Virginia Assembly, "were so mean and poore . . . that they could not stand above one or two yeares." Some of the poor families made cave dwellings, with one chamber half underground on the side of a hill, roofed with rushes, bark, and sod. With the introduction of saw mills, houses were constructed of hewn logs and boards, which now became very cheap. Log cabins of the familiar American type seem not to have been built before 1640, when they were introduced into this country by the Swedes. With the increase in wealth and the growth of an artisan class better houses came to be constructed, and differences, comparable with the class distinctions just noted, began to appear.

{ During the seventeenth century the wealthy merchant class of the North and the planters of the South built frame houses with shingled roofs, usually of one story with a loft and containing not more than six to eight rooms. The great stone chimney, providing for two or three open fireplaces, was placed in the center. } The eighteenth century saw the construction of larger and more solid structures of brick; after about 1720 the introduction of the Georgian style produced the type of architecture which we call colonial. Outstanding examples of these early homes, still preserved, are the House of the Seven Gables in Salem, Mass., the Van Cortlandt mansion in New York, and Washington's home in Mount Vernon. The furnishings of such homes were generally obtained from abroad, especially in the case of the wealthy merchants of the Middle colonies and the planters of the South.

{ Less pretentious were the houses of the farmers. } In the seventeenth century the familiar type was a one-story lean-to, with a long sloping rear roof, but in the eighteenth



A CORNER OF A COLONIAL KITCHEN

If you visit the Paul Revere House in Boston you will see this kitchen with its old furniture. The spinning wheel was to be found in every colonial farm house. So important a part did spinning play in the home life, that an unmarried woman was known as a "spinster" from her chief occupation. Cooking was done over the open fire, which was also the sole source of heat in winter.

century this gave place to a clapboarded frame house of full two stories. They were, however, generally unpainted. At first there was a serious lack of glass and the few windows were covered with oiled paper, but this condition was steadily remedied. There was no plumbing, even in the houses of the wealthy ; the sanitary arrangements were therefore of the simplest character. Tubs for bathing were unknown. The furniture was homemade or fashioned by a local cabinet-maker, but was substantial.

The houses of the workers were poor and rude. On the frontier and in newly settled regions log houses were the usual type. The chinks between the logs were filled with mud and moss and plastered over with clay. The floor was

at first of earth, and later of hewn logs or unplanned boards. The furniture was equally primitive, consisting of a bunk fastened against the wall, three-legged stools, and a table made by setting a long slab from a tree trunk up on four legs. Of such a home, where he was forced to stop for the night, William Byrd wrote, "There was a dirty poor house, with scarcely anything in it but children, that wallow'd about like so many pigs."

The problem of heating the houses during the winter, especially in the severe climate of the North, was a serious one during the whole of the colonial period. The great open fireplace, found in all homes, met the difficulty very inadequately. Most of the heat went up the chimney, and people complained that while their faces burned their backs froze. Chimney seats, built along the sides of the fireplace, were preferred places. Cotton Mather and Judge Samuel Sewall wrote of the ink freezing in their pens as they composed by the chimney side, and of the sap at the ends of the logs on the fire freezing while the center of the log was consumed by the flames. A great improvement was introduced by the Germans in Pennsylvania who built iron stoves in the wall, and another step forward was made through the invention by that universal genius, Benjamin Franklin, in 1742, of the Franklin heater, which could be set in the fireplace. This fairly revolutionized the heating of colonial houses, of both the poor and the wealthy.

Another problem was that of providing artificial light after darkness fell. A partial solution, which also solved that of lack of heat, was to go to bed soon after sundown. The earliest colonists burned great pine knots on a flat stone in the corner of the fireplace, but these exuded tar and smoke and gave a poor light. Candles were early made of tallow or similar materials, but these afforded only a flickering light, and were unsatisfactory in many ways. With the beginning of whaling, spermaceti candles came into general use and marked a great improvement in lighting. The whaling industry therefore came to be of primary impor-

tance. Lighting by candle was, however, very expensive. The president of Harvard College calculated in 1761 that the cost of a single tallow candle for five hours every evening was about \$8 a month, while that of a spermaceti candle was double. The smoky lamps of the seventeenth century, similar to ancient Roman lamps, with a loose wick floating in a shallow saucer filled with tallow, grease, or oil, were supplanted in the eighteenth century by glass lamps of modern style which burned whale oil. Fire was obtained by flint, steel, and tinder, concerning which a saying ran, "If you had good luck, you could get a light in half an hour."

Food.—Game and fish were plentiful in all the colonies. "No man need starve," said Franklin, "who could bait a hook or pull a trigger." Indeed, the abundance of fish probably saved the lives of the earliest settlers at Jamestown and Plymouth. Fish filled the waters to such an extent that one writer testified, "I myself at the turning of the tyde have seen such multitudes of sea bass that it seemed to me one might goe over their backs dri-shod." From the Indians the colonists learned the trick of catching fish in weirs. Game was so abundant that venison was esteemed less than mutton, and farm laborers are said to have stipulated that salmon should be served only once a week. Domestic cattle and swine were soon introduced and multiplied rapidly, adding another supply of meat. For winter use this was salted, pickled in saltpeter and brine, or smoked.

Of grains, Indian corn or maize was the most important and was served in a variety of forms which were learned from the Indians, even the names being taken over. It was roasted, or boiled on the ear; soaked in lye and crushed into small bits, it was eaten with milk as hominy, samp, or suppawn. Ground into meal, it appeared in a variety of forms, as porridge, hasty pudding, pone, and later as Indian pudding which was cooked with molasses and was a favorite dish. Other vegetable foods were pumpkins, squashes, potatoes (especially sweet), beans, peas, parsnips, turnips, and car-

rots. Berries grew wild in profusion, and these were soon supplemented by imported tame varieties. Apples, pears, peaches, and quinces seem to have been the favorites among the fruits ; one writer speaks of the "gallant orchards" to be seen on every farm.

At the time when America was settled water was not drunk freely in Europe, for bad sanitary and drainage conditions contaminated the supplies and made them unsafe for human use. The English people consequently slaked their thirst with ale, the Dutch with beer, and the French and the Spanish with light wines. But the early colonists could not obtain these beverages, and were forced to drink water, which to their surprise agreed with them and improved their health. It did not take the colonists long, however, to produce Old World drinks, and soon distilled and fermented liquors were being made everywhere, especially beer among the Dutch and rum in New England and New York. Light wines and "homebrew" were made from persimmons, peaches, blackberries, elderberries, birch bark and other roots, berries, and fruits. Cider was a universal beverage. | Among non-alcoholic drinks chocolate was a favorite, though coffee was used ; tea was introduced about 1714 and by the time of the Revolution was very popular. It was then boycotted, and we later became the greatest nation of coffee drinkers in the world. | Milk was a staple article of food, and was plentiful and cheap, but butter was not common. Wild honey and maple sugar were the principal articles for sweetening, though molasses was used by the poorer people. In the eighteenth century a fairly plentiful supply of cane sugar was obtained from the West Indies.)

One must not be misled by this long enumeration of foods into thinking that the common man's table groaned under the load of many varied dishes. It is true that the dinners of the wealthy might consist of an abundance of meat, vegetables, preserves and jellies, pies and puddings, with several kinds of wine, but this was certainly not typical. The diet of the people in general was simple and plain, though bounti-

ful. Among the farmers, who raised most of their own food, breakfast would probably consist of porridge and milk ; dinner of a great hotchpot consisting perhaps of corn and kidney beans stewed in a great pot with a slice of salt beef, pork, or venison, topped off with a piece of pumpkin pie or stewed fruit ; for supper the children might have hasty pudding and milk or pumpkin stewed in milk, while the parents would enjoy a slice of cold pork, brown bread, and a mug of cider or beer. The fare of the working man was still simpler ; we even read that many of them did not taste meat oftener than once a week.

Cooking was done over the open fire and consequently there was a predominance of stewed and roast dishes, which were prepared in iron pots or brass kettles ; roasting was done on a spit. Food was served on wooden trenchers and pewter plates ; only on the tables of the rich was silver to be seen. A steel knife and a pewter spoon were the only utensils in general use ; forks were uncommon until the eighteenth century, the first one in the colonies being imported by Governor Winthrop in 1633. Drinking vessels were pewter cans, wooden tankards, gourds, and cocoanut shells. China was not introduced in quantity until after the opening up of a direct trade with China by American shippers.

Clothing.—Striking contrasts existed in the dress of the wealthy and the poor, which were the more insistently prescribed by legislation and usage since they gave visible evidence of the class distinctions already described. "The gentleman was permitted to adorn himself with articles of dress forbidden to the goodman ; the goodman wore others which were withheld from the day laborer or the servant. Lace, silver and gold thread, slashed sleeves, embroidered caps, 'bands & rayles,' gold and silver girdles, hat bands, ruffs were forbidden to all save the upper classes."¹ And yet the frequent trials before the courts give evidence less of the enforcement of these rules than of the steady pressure from

¹ T. J. Wertenbaker, *The First Americans, 1607-1690* (New York, 1929), 73.

below to break them down. The well-to-do merchant or the wealthy planter might display his gold-laced hat, powdered wig, brilliantly colored coat, velvet waistcoat, silver buckles and buttons, silken hose, and gold-headed cane. But such garments were ill-suited to farmers or artisans, and these groups wore clothing dictated by convenience and economy as well as by law.

The homespun suits of the farmers were made of wool, which was grown and carried through its varied processes on the colonial farm. Wool, however, was too expensive for every-day use and leather garments were common. The Massachusetts Bay Company gave to the settlers at Salem, among other things, "two suits of doublet and hose of leather lined with oiled skin." Leather trousers and aprons were common and kept pliable by being oiled and greased. Clothing was also made of linen, of canvas, and of "linsey-woolsey" (a mixture of linen and wool), but very little use was made of cotton as this was too expensive until the invention of Whitney's cotton gin in 1793; silk was reserved for the dominant class. Woolen stockings and heavy cowhide boots or shoes, often with wooden heels, completed the costume of the working man. Indentured servants wore similar clothing, though of poorer quality, but the slaves of the South frequently wore only a breech-cloth in the summer.

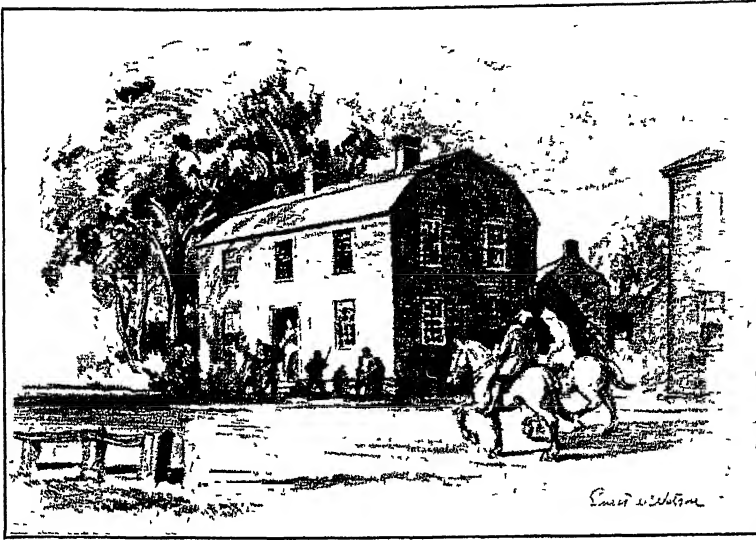
Wages.—The scarcity of able-bodied men who would work for hire held wages high in the colonies as compared with contemporary wages in England. The employing class was disturbed by the high wages demanded by artisans and expressed the fear that soon all social distinctions would disappear. Efforts were made to fix maximum wages. Thus in 1633 a Massachusetts statute limited skilled artisans to 2s. a day when boarding themselves or 14d. if "dyett" were provided. This was about as much as an English agricultural laborer could earn in a week, but on the other hand the cost of living was higher in the colonies than in England. But such legislation was impossible of enforcement,

for a new country offered too many opportunities for advancement and the demand for labor was too great. After two years' trial the law was consequently repealed, although individual towns, in conformity with English usage, continued to fix wages. The net result of this was to draw labor to the higher wage centers. Similar legislation was passed by Connecticut in 1660, fixing the wages of agricultural workers at 2s. a day in summer and 18*d.* in winter, while carpenters were allowed 2s. 6*d.*, and 20*d.* respectively. In the long run, however, wages were determined by economic law rather than by legislation, and economic conditions favored high rates.

More convincing evidence of the real rewards of labor than a statement of money wages is to be found in the size of the estates of some artisans. Thus we find a tailor buying a house and garden in Boston for £50, a baker purchasing a dwelling house for £39 10s. ; a boatman and weaver left an estate valued at £171 12s. 10*d.* A letter from an immigrant in Pennsylvania in 1698 to a relative in England gave a favorable picture of conditions : "It is a great deal better living here than in England for working people. Poor working people doth live here as well as landed men doth live with you that's worth £20 a year. I live a simple life and hath builded a shop, and doth follow weaving of linen cloth, but I have bought 450 acres of land in the woods."

There was not much change in the wages of skilled labor during the eighteenth century. The early monopoly advantages were offset or nullified by immigration and by the rapid natural increase of the population. The general absorption in agriculture and the lack of industrial development also held down the demand for artisans. On the other hand, the need for agricultural labor was met in the North by the system of labor exchange among farmers, and in the other colonies by indentured servants and slaves.

Education.— In estimating the well-being of the colonists it is not sufficient to note how fully they met their needs for food, clothing, and shelter, but we must also understand their



THE FIRST AMERICAN HIGH SCHOOL

This drawing shows the Boston Public Latin School as it appeared at the close of the seventeenth century. The one room was fairly large, and on the second floor were quarters for the schoolmaster and an assistant or non resident pupils.

education, recreation, and general state of culture. Here again there existed wide differences among the various groups, with the advantage all on the side of the wealthy.

The common school found its highest development in New England. Here the compact settlements made it possible to gather pupils together in sufficient numbers to employ a teacher, while the clergy insisted upon education. Massachusetts led the way in 1647 with a law requiring every town of fifty or more householders to establish an elementary school, and those of one hundred householders a grammar school as well.² Although the act was not fully enforced, it set a standard. The primary schools, often called dame schools because the teacher was usually a

² The religious basis of this step is evidenced by the quaint preamble to the law : "It being one chief object of the old deluder Satan to keep men from the knowledge of the Scriptures . . . it is therefore ordered," etc.

woman, taught spelling, reading, and the catechism. Having mastered these the pupil was ready for the grammar school, where he began the study of Latin. To New England belongs also the distinction of establishing the first college in the British colonies, Harvard College being opened in 1638 in Cambridge, Massachusetts. Other Northern colonies followed this example rather slowly, New Jersey authorizing towns in 1693 to levy taxes for the support of public schools. Rhode Island and New Hampshire were almost entirely without schools until 1701, and as late as 1756 the schools of New York were declared to be "of the lowest order." Since school attendance was not compulsory, the children went only when they could conveniently be spared from work.

In the Southern colonies the separation of plantations and consequent wide dispersion of the population made it impossible to establish effective school systems. The boast of Governor William Berkeley in 1671 that there were no free schools in Virginia was not true, for when he wrote there were two free schools in that colony. There were also a number of Old Field schools, so called because they were established on the abandoned tobacco lands; the clergyman or the wife of one of the planters usually presided and taught reading, writing, and the catechism. They were, however, scattered, small, and inefficient. In such circumstances it is not surprising to find illiteracy common among the white adults. Of 12,445 men who attached their names to deeds between 1641 and 1711, 5006 or 40 per cent were forced to make their marks, while of 3066 women 2310 or 75 per cent did the same. Grammar schools also existed, and in 1697 William and Mary College was opened, but it was for many years little better than a grammar school. Southern planters who wished their sons to enjoy a college education employed tutors or sent them to England.

In judging the state of education in the colonies it must be remembered that America constituted the western fringe of population, and that the country was isolated from the

intellectual movements in Europe. There was, moreover, no leisure class who could study and carry on research. Most of the writing was done by the clergy on theological topics. The schools were almost a monopoly of the wealthy and the colleges even more so. For the mass of the people education was obtained, not from books, but from practical experience on the farm, the sea, or in the shop. The colonial boy was schooled in the arts of the farmer and the woodsman ; though he might make his mark instead of writing his name he knew how to care for a farm, handle an ax, or shoot a gun. The many demands of a pioneer life trained the minds as well as the hands of the settlers. These developed habits of industry, initiative, and thrift, but their life was hard and they were apt to have a narrow outlook and to be provincial and superstitious. In no respect was the effect of environment so noticeable as in the domain of education.

Recreation.—The seventeenth century was one of pioneering and unrelenting toil. All the energies of the settlers were absorbed in the strenuous tasks of clearing the forest, building homes, producing food and clothing, and developing profitable industries. Life was primitive and hard and as a result there was little time or energy to devote to the arts or to play. The outlook on life was, moreover, colored by the prevailing English middle class ideas of the period, which we are accustomed to call Puritan but which were found equally in the Southern colonies. Alike in both the North and the South was to be found legislation against idleness, drunkenness, Sabbath breaking, dicing and card playing, and "excess in apparell." But as time went on, life developed along such different lines in the two sections that by the end of the seventeenth century the Southern planters had quite forgotten their early scruples and sought pleasure unabashed in racing, hunting, dancing, card playing, cock fighting, and other sports. In New England pleasure seeking was regarded with suspicion, and card games, dice, stage-playing, and mixed dancing were frowned upon. Yet even the Puritans had their diversions, such as shooting matches,

lectures, military training days, wrestling matches, and running races.

By the eighteenth century the growth in population and wealth and the increased security began to have their effect on social as well as on economic activities. "The pioneering period is past," said Franklin, "and the time has come to think of other things than merely subduing the wilderness." After the middle of the eighteenth century a distinct American culture begins to show itself. Clubs were formed for social and intellectual purposes; from one of these latter came the American Philosophical Society, founded by Franklin in 1747. Weekly newspapers existed in six of the colonies in 1763. Painting, music, and the drama obtained a foothold toward the end of this period. Most of this culture was based on English models, but the environment of the New World was impressing upon it a stamp that was increasingly American.

As in other lines, so even in matters of recreation and culture there was an unequal distribution of their benefits. Most of the things mentioned could be enjoyed only, or chiefly, by the wealthy and the educated. The farmer, the artisan, and the laboring man had little share in the higher artistic forms of recreation. They sought their pleasures in such community sports as "bees," house-raising, spinning matches, and the like, on which occasions games of physical prowess, feasting, and drinking were their chief diversions. Human pleasures are, however, largely a matter of contrast, and any change from hard work, sweetened with human contacts, undoubtedly yielded satisfactions that may not be measured by comparison with the relaxations of the twentieth century.

Distribution of wealth.—During the colonial period there was a considerable increase in wealth. Homes had been constructed and furnished, land cleared and brought under cultivation, towns had grown up at strategic points, ships had been built and articles produced to fill them with salable cargoes, and industries had been established. To

handle this growing business wealthy merchants had come into existence in the North, while in the South the system of slavery tended to concentrate capital in the hands of the planters. The leveling poverty of the seventeenth century was replaced in the eighteenth century by increased wealth more unequally divided. Some groups, as the slaves and the convict servants, did not share at all in the improved conditions ; the lot of the common laborer was bettered little if at all, and even the skilled artisan did no more than hold his own. The self-sufficing farmer had an assured existence, and undoubtedly enjoyed many of the benefits that came with increased population and closer social relationships. But the dominant groups prospered in much larger measure than any of the others just mentioned.

Any judgment of colonial conditions, of class distinctions, and of the distribution of wealth must always be qualified by the important fact that these lines of cleavage were not fixed and permanent. Classes were not determined by birth, but rather by wealth and education. Both of these factors were matters of achievement and the way was open, as in no other country at that time, for any man of industry and ability to push his way up to the top. Only the Negro slave had a fixed position, for whom even freedom offered little improvement. In the South, in the seventeenth century, when most of the labor was performed by indentured servants, the class distinctions were slight and the servant, upon the expiration of his term of service, became a farmer or an artisan. Many of them rose to positions of wealth and distinction. In the eighteenth century, when slavery had been fastened on the South, there was less opportunity for the man of small means, and classes tended to become fixed.

In the North the commercial development of the eighteenth century opened up many new opportunities. Few of the wealthy merchants inherited their fortunes ; they earned them. The artisan might become a shopkeeper and then a merchant ; the sailor-fisherman might embark upon foreign trade ; the farmer become a large landowner. And, above

all, the children of those groups could enter upon any profession or business for which they had a liking. The door of opportunity was open. Classes there were, but the membership of these classes fluctuated and was constantly being recruited from below. This is the most significant fact to be considered in estimating the progress of the people during the colonial period.

It is difficult to draw conclusions on a matter so controverted as this, but the opinion of an acute contemporary writer, the author of *American Husbandry*, may well serve as a fair summary of conditions at the end of this period.³

There is in many respects a great resemblance between New England and Great Britain. In the best cultivated parts of it, you would not in travelling through the country, know, from its appearance, that you were from home. The face of the country has in general a cultivated, inclosed, and chearful prospect ; the farm houses are well and substantially built, and stand thick , gentlemen's houses appear every where, and have an air of a wealthy and contented people. Poor, strolling and ragged beggars are scarcely ever to be seen ; all the inhabitants of the country appear to be well fed, clothed, and lodged, nor is any where a greater degree of independency, and liberty to be met with : nor is that distinction of the ranks and classes to be found which we see in Britain, but which is infinitely more apparent in France and other arbitrary countries. . . .

Respecting the lower classes in New England, there is scarcely any part of the world in which they are better off. The price of labour is very high, and they have with this advantage another no less valuable, of being able to take up a tract of land whenever they are able to settle it. In Britain a servant or labourer may be master of thirty or forty pounds without having it in their power to lay it out in one useful or advantageous purpose ; it must be a much larger sum to enable them to hire a farm, but in New England there is no such thing as a man procuring such a sum of money by his industry without his taking a farm and settling upon it. The daily instances of this give an emulation to all the lower classes and make them point their endeavours with peculiar industry to gain an end which they all esteem so particularly flattering.

Summary : Material progress.—The colonial period showed a rapid development towards economic independence.

³ Quoted in Bogart and Thompson, *Readings in the Economic History of the United States*, p. 110ff.

on the part of the inhabitants of the different colonies, and an equally well-marked tendency towards sectional isolation. Bringing with them the existing tools and institutions of government of the old world, the colonists were able to wrest a livelihood from the rich resources of their new environment from the beginning. The aborigines, who had never passed beyond the stage of barbarism, were compelled to yield step by step to the superior culture and westward march of the pioneer. The combination of wonderful natural resources and of high qualities in the men who essayed the task of subjugating the new world resulted in steady progress.

Naturally, in a new country, the extractive industries were first developed. Agriculture was the most important single industry, and under the new conditions it grew along original lines, different from those which had developed under the feudal institutions of Europe. Other industries, too, sprang up in response to the economic needs of the colonists in spite of the artificial regulations of the mother country. In general, the typical colonial community was comparatively isolated and economically self-sufficient, and had limited communication with the rest of the world. By the middle of the eighteenth century great progress had been made towards settling and cultivating the territory on the Atlantic seaboard, but the American colonies were still in a primitive agricultural stage ; such manufactures as were needed were generally made within the home.

Summary : Social development.— Such conditions fostered the growth of free institutions, and the constant struggle with nature developed strength of character and of body. In spite of certain social distinctions which the colonists brought over with them from an older civilization, they were forced into a democratic mold by the essential equality of conditions in a primitive society. Equality and liberty were the ideals of the typical American colonist, while the abundance of free land led him to regard private property in land as hardly less sacred than his other rights. At one point, however, these ideals yielded to necessity — or greed.

There was great need in all the colonies for labor, and in order to secure the desired supply slavery was early introduced. New England and the South shared in the gains from this traffic ; for a while their interests seemed identical. Subsequently, the diverse economic, social, and political ideals which grew out of the contrasting labor systems of North and South led to complete estrangement of these sections. For the time being, however, sectional differences were harmonized in a common animosity against the mother country, whose restrictive colonial policy began now to hinder the natural economic development of the colonies. The attempt on the part of England to enforce these restrictions led naturally to resistance from the colonists, and resulted inevitably in revolution.

SUGGESTIVE TOPICS AND QUESTIONS

1. Did the various economic and social groups owe their position to legislation, to possession of wealth, or to differences in ability? [T. J. Wertenbaker, *The First Americans*, 1607-1690 ; J. T. Adams, *Provincial Society*, 1690-1793.]

2. Did the position of the artisan become worse or better during the eighteenth century?

3. Did the improvement in means of transportation affect the culture or the standard of comfort of the colonists? [A. M. Earle, *Stage Coach and Tavern Days*.]

4. Describe more fully the homes of the colonists. [A. M. Earle, *Home Life in Colonial Days* ; Fiske Kimball, *Domestic Architecture of the American Colonies and of the Early Republic* ; H. D. Eberlein, *The Architecture of Colonial America*.]

5. Describe in detail the equipment of a colonial kitchen. [A. M. Earle, *Home Life in Colonial Days*.]

6. Would you say that the American colonist was poorly or unsuitably clothed? [Elizabeth McClellen, *Historic Dress in America*, 1607-1800.]

7. Describe the life in some colonial college before the Revolution. [A. B. Hart, *History Told by Contemporaries*, II, 255-7, 266-275.]

8. Was there any considerable development of literature or art in the colonies? Explain your answer. [J. Bristed, *America and Her Resources*, chap. 6 ; E. B. Greene, *Provincial America*, chap. 18 ; W. Wilson, *History of American People*, III, 83.]

9. Describe the social life, diet, dress, and domestic economy of the early colonists. [H. C. Lodge, *English Colonies in America*, see Index ; A. M. Earle, *Home Life in Colonial Days* ; H. E. Scudder, *Men and Manners* , A. B. Hart, *History Told by Contemporaries*, II, chap. 12.]

10. Describe the amusements of the colonists. [C. B. Andrews, *Colonial Folkways* , P. A. Bruce, *Social Life in Virginia in the Seventeenth Century* ; W. B. Weedon, *Economic and Social History of New England, 1620-1784*.]

11. Would you conclude that the well-being of the colonists improved throughout the colonial period ? Of all groups ?

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Part II—Struggle for Commercial and Economic Independence (1763–1808)

CHAPTER VII

ENGLISH COLONIAL THEORY AND POLICY

A vital problem that presented itself in connection with the colonies was the determination of the proper economic relation between the colonies and the mother country. Then the best method of carrying out this policy had to be evolved and applied. The effects of the policy both at home and in the colonies gave rise to still other problems, governmental as well as economic, such as the proper enforcement and administration of the laws, evasion of restrictions, smuggling, or, on the other hand, suppression of natural developments.

Economic conditions in Europe during the sixteenth and the seventeenth centuries.—The discovery of the new world and of a shorter route to India had exercised a revolutionary effect upon the countries of Europe. The flood of silver which followed the opening of the South American mines had assisted in breaking up the feudal system of payment in kind and in substituting a money economy. Throughout the sixteenth and the seventeenth centuries trade and communication were expanding. Powerful states were forming, with paid armies, and to secure the needed revenues to pay them it became necessary to develop taxation. As manufactures in the towns yielded greater revenues than did agriculture, these were selected for special encouragement by the state. Further, it was evident that only as the state was powerful could it help its citizens in their competition with citizens of other countries, or itself carry on

successfully commercial struggles with rival nations. Accordingly a definite economic policy was formulated, of which the government was the head. The aim was so to regulate industry that the state should be made strong and powerful. The set of measures by which this national power was to be developed is called the mercantile system, and it was under the influence of this system that not only England, but all European countries, regulated their trade and commerce during this period.

The mercantile system.—The aims of the mercantile system in England have been classified by Warner under four main heads : (1) the policy of encouraging native shipping by navigation acts, in order that the realm might have plenty of ships and sailors from which an efficient navy could be formed ; (2) the policy of protecting and helping native grain growers, in order that England should be independent of food from outside, and should always be able to feed the population from her own land ; (3) the policy of protecting home industries, and of planting new ones to give employment to native artisans ; and finally, (4) the policy of amassing and keeping in the country a large amount of money.

Protection to shipping.—As early as the reign of Richard II (1377-1399) it was enacted that "none of the King's liege people should ship any merchandise out of or into the realm, except in the ships of the king's ligeance, on pain of forfeiture." Under Henry VII (1485-1509) and Elizabeth (1558-1603) similar laws were passed. The best known legislation for this purpose was the famous navigation acts, the first of which was passed in 1651 under Cromwell. This prohibited the carrying of goods to and from England in any but British built and manned vessels.

But, to develop the English merchant marine, it was necessary not merely to secure a monopoly of the carrying-trade, but also to train sailors, encourage shipbuilding, and provide an adequate supply of naval materials. We find, accordingly, legislation directed to each of these ends. Since

fishermen made good sailors, every encouragement was given to their industry. As the simplest way was to increase the demand for fish, an act was passed in 1548, "in order that the Fishers may be set on work," directing that fish must be eaten two days a week throughout the year as well as during Lent. Later, bounties were given. Shipbuilding was encouraged rather indirectly by clearing the sea of pirates and making the ocean a safer place for travel. Finally, strong efforts were made to secure the production of naval stores in the colonies, especially flax, hemp, tar, and pitch, though never very successfully.

Protection to agriculture and industry.—The policy of making England strong by building up a powerful navy found its application to agriculture and manufacturing in an effort to make the country economically self-sufficient. In respect to agriculture, it was desired to raise enough food in England to support the population, and not less to develop a sturdy yeomanry who should serve as soldiers in time of war. Accordingly, the enclosure of arable land and its diversion to pasture was restricted and the import of grain forbidden or limited. To encourage home manufacturing industries and provide employment for the workers, the importation of various foreign manufactured wares was forbidden, as woolens, silks, iron, leather goods, hats, and many smaller articles; the exportation of domestic raw materials was also prohibited. On the other hand, every effort was made to obtain supplies of needed raw materials from other countries, and to ensure their being brought to England for the use of English manufacturers. [The underlying principle was the same in all these provisions — to make England and the English people strong at the expense of other nations.]

Money and the balance of trade.—But the mercantilist doctrines found their fullest expression in the legislation with regard to money; this was the keynote of the whole policy. The doctrine was a simple one: money is the most general and universally desired form of wealth; that nation,

like the individual, is richest which has the largest store of gold and silver ; riches bring power, and it is therefore necessary for a successful nation to obtain a bountiful supply of money. Thus Spain, which controlled the silver mines of America, was one of the most powerful nations of Europe. But since England possessed no mines, she could get money only in exchange for goods ; in order to do this, she must export as many commodities as possible and import as few as possible, except raw materials, taking the difference in money. This difference was called the balance of trade, and was said to be favorable when an excess of exports over imports brought in money ; unfavorable, when the reverse was the case. In order to maintain a favorable balance of trade the government must resort to many expedients — high duties on imports or their prohibition, bounties on the exports of home productions, and restrictions upon the exportation of the precious metals. —

English colonial policy.— The doctrines of the mercantile system, applied to the colonies, resulted in a policy by which their resources were used to make England powerful. To build up English shipping, agriculture, and manufactures, and to secure a favorable balance of trade, was the object of English legislation during the whole of the colonial period. In this policy the colonies were regarded as feeders merely, supplying the raw materials for English manufactures and a market for the finished goods, while a large exchange of commodities between the colonies and the mother country built up a profitable carrying-trade for British ships. Accordingly the manufacture in the colonies of such goods as could be made in and exported from England was forbidden. Such colonial products, moreover, as were desired at home, the colonies were forbidden to send anywhere except to England ; while other goods, which would compete with English interests, were prohibited from being sent to England, although they could be exported to certain other countries. The first group, which was “enumerated” in the law, consisted of commodities not produced at

all in England, as coffee, indigo, tobacco, beaver skins, dyes, etc., or of products whose home supply was insufficient, as naval stores, masts, tar, pitch, pig iron, pot and pearl ashes, etc. The second group, of "non-enumerated" products, consisted of such articles as grain, salt provisions, fish, and rum.

The general principle then was that the colonies should be used for the benefit of the mother country, and is well expressed in Lord Sheffield's famous observation that "the only use and advantage of American colonies, or West-India Islands, is the monopoly of their consumption and the carriage of their produce." This idea was even more clearly stated by Sir Francis Bernard, governor of Massachusetts: "The two great objects of Great Britain in regard to American trade must be (1) to oblige her American subjects to take from Great Britain only, all the manufactures and European goods which she can supply them with; (2) to regulate the foreign trade of the Americans so that the profits thereof may finally center in Great Britain, or be applied to the improvement of her empire."

There was indeed a certain justification for this position as the colonies were, at least during the eighteenth century, a constant expense to England, and it seemed only fair, therefore, for the mother country to use their resources for her profit. The attitude of England in this regard was considered by Adam Smith "less illiberal" than that of other nations. No country allowed foreigners to carry on trade with its colonies; such was the policy of Spain, Holland, and France, as well as England. ♣

• Early commercial freedom of the colonies.—When the first settlements were made in America they were granted complete exemption from trade restrictions. The Virginia, the Maryland, and the Plymouth companies all received various concessions, as freedom from duties, use of their own revenues, etc., designed to encourage the colonization and development of the country. According to the first charter granted the Virginia Colony their trade was open to any foreigner upon payment of a small duty. In 1624, however,

James I dissolved the company and thereafter tobacco was exported only to England. The growing trade with Holland was thus nipped in the bud, and the possible revenues from duties on imports into England were reserved for the crown. In general, there was practical freedom of trade on the part of the colonies up to the time of the Navigation Ordinance of 1651.

The Navigation Ordinance of 1651.—This famous act, passed under Cromwell, was directed against the Dutch, who at this time were the carriers of the world's commerce. It was desired both to cripple Holland and to build up English shipping by confining English trade to English vessels. The policy was successful, and England soon supplanted Holland as the foremost maritime power, as the result of this and other causes. The act provided that all products "of the growth, production, or manufacture of Asia, Africa, or America, or of any part thereof, . . . as well of the English plantations as others," could be imported into England or its dominions only in English-built and English-manned vessels. The word "English" included also the colonists. This act, therefore, aimed to give a monopoly of the traffic or carrying-trade between England or the colonies and other countries to British (*i.e.*, English and colonial) shipowners, for the purpose of building up British shipping.

Effect of the Navigation Act.—In 1650 the chief interests of the colonies were agricultural; shipbuilding, fishing, and fur-trading being practically the only other industries. The Navigation Acts, which required the use of English or colonial ships in the carrying-trade, gave a distinct impetus to shipbuilding and shipping. Shipbuilding soon became the most important industry in New England outside of agriculture. Indeed, colonial vessels soon began to be sold in England and to displace English vessels in the carrying-trade; by 1775 one-third of the ships engaged in British trade were colonial-built. The only complaints as to the effects of these provisions came from Virginia tobacco planters, and they soon died away.

Regulation of colonial commerce.—The act of 1660 added to the monopoly of navigation that of colonial commerce and markets. It was designed to make England the distributing point for certain colonial staples. Certain “enumerated” commodities were not to be sent to continental Europe, but were first to be landed in a British port, from which they could be reshipped to the Continent after the payment of customs duties ; but they could not be shipped directly from the colonies to any foreign country. In Chapter 18 of this act were enumerated those commodities which could be exported, on pain of forfeiture, only to England : “No sugars, tobacco, cotton-wool, indigo, ginger, fustick, or other dyeing woods, of the growth, produce, or manufacture of any English plantations in America, Asia, or Africa, shall be shipped . . . to any place whatsoever,” except England or other English plantations. This list was later considerably expanded by the addition of various other commodities : naval stores, such as tar, pitch, turpentine, hemp, masts, yards (1704) ; molasses and rice (1706) ; copper ore, beaver skins, and other furs (1722) ; bar and pig iron, whale fins, hides, lumber, raw silk, and pot and pearl ashes (1764). The monopolization of rice and sugar to English markets became impossible as the production of these commodities in the colonies increased, and the laws were somewhat relaxed with regard to them. The shipment of rice was permitted after 1730, and of sugar after 1739, direct from the colonies to any part of Europe south of Cape Finisterre ; as those were not manufacturing countries England was less jealous of colonial trade with them. But this exportation to the Mediterranean or other South European countries could be carried on only in English ships ; colonial vessels were permitted to transport rice and sugar only to England or to some other British colony.

The non-enumerated commodities could originally be sent to any part of the world, including England. No restrictions were placed by the Navigation Acts until 1766 upon the markets for commodities of this sort. Other legislation,

however, such as the tariff acts and early corn laws, prohibited the importation of certain food-stuffs into England for the purpose of protecting English agriculture. After 1660, for instance, New England fish were entirely excluded from the English markets; other articles affected were wheat, corn, flour, and meat, all staple exports of the New England and the Middle colonies. Articles other than food-stuffs could, however, be sent to England, and, as a matter of fact, were shipped there in large quantities, even before they were enumerated, since for them London offered the best market; such were iron, lumber, pot and pearl ashes, whale fins, and similar commodities.

Effects of the restrictions upon exports.—The purpose of the acts was clear: it was the desire of English merchants and manufacturers to keep America an agricultural country, which should furnish the raw material for England and interfere as little as possible in her trade with foreign countries. The interests of the colonies were made distinctly subservient to those of the mother country. The actual effects of these restrictions upon the commerce of the colonies have, however, been greatly exaggerated. And, moreover, they should be judged according to the then accepted theory of the proper method of dealing with colonies.

Of the original group of enumerated commodities one only — tobacco — was a product of the American colonies, but this was of sufficient importance, constituting as it did nearly one-half of all the colonial exports, to condemn or excuse the whole principle of restriction. By the Act of 1660 all tobacco could be shipped only to England or to English colonies; from England much of it, to be sure, was re-exported to foreign countries, but, though a drawback of the duty was allowed, the additional freight and warehouse charges went into the pockets of English middlemen. On the other hand, the growing of tobacco was prohibited in England and high duties were imposed on Spanish tobacco, thus guaranteeing a monopoly of the English market to the Virginia tobacco grower. On the whole there was so nice

a balance of gains and losses, that it is doubtful whether Virginia would have welcomed complete free trade, with the removal of all restrictions and of all special privileges.

The inclusion of rice in the list of enumerated commodities in 1706 imposed a real hardship on the Carolina rice-growers by depriving them of the Spanish and the Portuguese markets; that this was regarded as an injury is proved by the relaxation of the law in 1730 so as to permit the direct exportation of rice to any country south of Cape Finisterre. The restriction in 1704 of naval stores (*i.e.*, tar, pitch, turpentine, hemp, masts and bowsprits) to the English market was probably more than offset by the granting of bounties for their production. By the time the exportation of beaver skins was regulated in 1722, the fur trade was already passing from the American colonies to the French in Canada, but for a time the restriction was keenly felt by certain sections of the colonies.

Restrictions upon imports.—While the regulation of exports did not, perhaps, disastrously affect the colonies as a whole, at least before the middle of the eighteenth century, the restrictions upon imports had a more serious effect. The law of 1663 prohibited the importation into the colonies of any commodities of the growth, production, or manufacture of Europe, unless laden and shipped in Great Britain and in British-built and manned shipping. The only articles excepted were salt for the fisheries, wine from Madeira and the Azores, and all sorts of provisions from Scotland and Ireland. The act of 1660 was designed to make England the *entrepôt*¹ for colonial staples; that of 1663 was intended to give her merchants the profits of handling all European goods that were sent to the colonies.

The colonists were not forbidden to import European goods; only they must go to England for them. This meant that a New England vessel, after carrying a cargo of lumber to the Azores, would be obliged to return empty

¹ A warehouse; a place where merchandise is deposited; a trading center.

except for wine from the Azores, or to make a roundabout trip and load in England for a return cargo on the voyage home. While English merchants and factors were thus afforded an opportunity of pocketing a middleman's profit, prices of such goods in the colonies seem to have been but little if any higher as a consequence, since England was the natural *entrepôt* for such trade. Utterly indefensible, however, was the restriction, by the imposition of prohibitive duties in the Molasses Act of 1733, upon the importation into the colonies of sugar, molasses, and rum from foreign plantations. Considerable quantities of molasses were at this time annually imported from the French and the Dutch West Indies into New England, where it was distilled into rum and used as a basis of a profitable three-cornered trade with Africa. The products of the Northern colonies were in great demand there, and the fish of New England, the flour and the bread of the Middle colonies, and the cattle, horses, and especially lumber of both sections, found a ready market in exchange for the sugar, molasses, cotton, logwood, indigo, and other tropical products of the West India islands.

As the object of this act was to aid the development of the declining British sugar industry, the American colonies were sacrificed, not to the supposed best interests of English manufacturers, but to the greed of British West India sugar planters. In practice, however, this act remained a dead letter. More serious to America was the strict enforcement of the law which accompanied the lowering of these duties by the Sugar Act of 1764. In fact a recent writer on the subject attributes to the irritation over this part of the English commercial policy much of the feeling against Great Britain which has in the past been assigned to the Stamp Act.

✓ **Restrictions upon intercolonial trade.**— There was still one other branch of commerce which had remained open to the colonies, and that was the trade with one another. The act of 1660 had imposed no restraints upon the intercolonial trade, but certain irregularities in carrying out other provi-

sions of the Navigation Acts had developed. In order to make them effective, the Colonial Duty Act of 1673 was passed, requiring that every vessel carrying exports of enumerated articles must either give a bond of £1000 to £2000 that these commodities would be landed in England, Ireland, or Berwick, or pay specific export duties. The intention of Parliament seems to have been that the inter-colonial trade must be carried on by way of England or be subject to export duties, but the ambiguous phraseology of the law gave a chance for diverse interpretations. The colonists were disposed to evade paying export duties on enumerated articles shipped to a colonial port. They certainly felt that if they paid the export duties the commodities might rightfully be shipped from the intermediate colonial port to any foreign country. Parliament, however, was determined that the export duties should be paid if the enumerated commodities were shipped to another colony, and that a bond must also be given that they would be delivered in England or to an English plantation. The administrative measure of 1696 was passed to provide the machinery, by means of admiralty courts, for stricter enforcement of the earlier acts. This constant interference with commerce involved a real hardship to the colonies and secured no corresponding advantage to the mother country. Between 1651 and 1761 upwards of twenty-five acts of Parliament were passed regulating colonial trade.

Restrictions upon manufacturing.—During the seventeenth and the eighteenth centuries manufactures were developing in England, and as the colonies became more important the English manufacturers demanded not only protection at home against colonial manufactures, but also the monopoly of the colonial market in which to dispose of their own products. Indeed, the prevention of manufactures in the colonies was an integral part of the mercantile system and simply supplemented the restrictions of the navigation acts; throughout this whole period Parliament watched most jealously every sign of the development of

manufactures in the colonies which might compete with home industries.

As early as 1699 the exportation of wool, yarn, and woollen cloth from the colonies "to any other of the said plantations, or to any other place whatsoever" was prohibited. Household manufacturing of woollen yarn and cloth was not forbidden the colonial housewives, but the possible exportation of these commodities in competition with the growing woollen industry of England was thus early prevented. Manufactures for domestic purposes continued to develop in the Northern colonies, however, and in 1732 the Commission of Inquiry was ordered by the House of Commons to investigate manufactures in the colonies. In the same year the exportation of hats was forbidden, and the number of apprentices who could be employed by colonial hat-makers was limited. Finally, in 1750, the erection of any slitting or rolling mills, or plate, forge, or steel furnaces, was absolutely forbidden. This last act was a severe blow to the growing iron industry of the colonies, and coming, as it did, just as the colonies were developing industrially, was a cause of serious irritation against the commercial policy of England.

The legislation prohibiting manufactures was the more irritating because the restrictive tariff and commercial policy of England, by shutting the English markets to the agricultural products of the Northern colonies and by hindering their exchange in the West Indies, made it difficult for the colonists to obtain the means with which to purchase manufactured commodities. In the Southern colonies, whose staple products were not thus prevented from finding a profitable market, manufactures never gained a foothold.

Encouragement to industry.—On the other hand, it must be remembered that along with the policy of restriction there went also the policy of encouragement. While manufactures were stifled, the production of raw materials was favored by an extensive system of bounties, from 1705 on, especially on indigo, hemp, flax, lumber, naval stores

(tar, pitch, turpentine, and rosin), and pipe, hogshead, and barrel staves. One estimate makes the amount paid in bounties to the colonies more than £1,500,000. So, too, the production and exportation of pig and bar iron was encouraged by admitting them into England free of duty, while Swedish iron was held off by a heavy tariff. As wood was used for smelting at that time, and not coal, the colonies were well adapted to the production of iron. Other articles, as tobacco, raw silk, pot and pearl ashes, lumber, iron, whale fins and train oil, etc., were at different times admitted to England either free of duty, or at rates much lower than similar articles from other countries.

In general, therefore, the commercial policy of England was designed to keep the colonies in the state of agricultural communities, which should supply raw materials to English manufacturers and furnish a market for their finished products.

Evasion of restrictions.—The situation in the colonies and the silent acquiescence of the colonists in this policy cannot be fully understood unless we realize to how great an extent the provisions were evaded. In the first place, the laws were allowed to become dead letters or were not strictly enforced by English officials down to 1764. Except for the short period for 1696 to 1721, when there was comparatively strict execution of the laws, the policy of "salutary neglect" of the colonies was adhered to by government officials. Indeed, there was often connivance of the customs officers in the evasion of the laws. In the South there was some illicit trade with the West Indies, while considerable went to other countries than England, though on the whole the trade from the section followed the regular channels. Most of the smuggling occurred in New England and the Middle colonies, where large quantities of wines, brandies, and other European goods, together with tea, coffee, spices, etc., from the East Indies, were smuggled into the larger cities. But the most extensive illicit trade was carried on with the West Indies. In 1700 one-third of the trade at

Boston and New York was said to be in violation of the law.

It must be remembered, however, that such contraband trade was regarded in the colonies as perfectly justifiable in view of the restrictive commercial legislation, and that some of the most reputable men were engaged in it. On the coasts of England itself, it is estimated that there were at this time about 40,000 smugglers. Certain it is that the general practice of smuggling and the evasion of the laws made the restrictive legislation of England bear less heavily upon the colonists than it otherwise would have done. Indeed, had it not been for the profits from this illicit trade, the colonies would never have been able to pay for the enormous amount of British manufactures and European commodities annually imported from England; for the first half of the eighteenth century these amounted on the average to about £500,000 a year and were paid for only in part by the colonial products exported directly to England.

Conclusion.—There has been much controversy over the effect of the English colonial policy upon the colonies, but a fair conclusion seems to be that on the whole the industrial and commercial development of the colonies was very slightly affected by the acts of trade, and that the colonists carried on those industries which were to them of the greatest advantage. More important than the industrial and the commercial effects of this legislation were the political consequences, which led ultimately to the Revolution.

Another question which may be raised is as to whether this colonial legislation represented a well-thought-out systematic policy or was a haphazard series of disconnected enactments. Looking back over the period from 1650 to 1764 one may conclude that the legislation possessed a certain unity when completed, but that the laws were enacted piecemeal in response to the demands of private interests, each stopping up one loophole after another in the colonial program. No statesmanlike, comprehensive plan was put forward at the beginning or at any time, but the immediate

problem was met in each case. Still, after a century and a quarter of patchwork, the completed body of legislation may be said to have constituted a genuine colonial policy.

SUGGESTIVE TOPICS AND QUESTIONS

1. When and by whom was the Mercantile System given expression ? [J. K. Ingram, *History of Political Economy*, 34-56 ; U. Rabbeno, *American Commercial Policy*, chaps. 1, 2, 3, Encyclopedias.]
2. What was the history of the Dutch East India Company ? [C. Day, *The Dutch in Java*, chaps. 2, 3 ; Encyclopedias.]
3. The history of the English East India Company ? [Beckles Willson, *Ledger and Sword* ; Encyclopedias.]
4. Does any modern system of governmental regulation of industry remind you of mercantilism ? How ?
5. Draw a chart interpreting British mercantilism, either in one of its phases or as a general movement.
6. Was the English colonial system a benefit or an injury to the colonies ? [G. L. Beer, *The Commercial Policy of England* ; U. Rabbeno, chap. 3.]
7. Was the English colonial system advantageous to England ? [U. Rabbeno, 37-47 ; D. Ricardo, *Principles of Political Economy and Taxation*, chap. 25.]
8. Why did England try to stimulate the production of naval stores in the colonies ? [E. L. Lord, *Industrial Experiments in the British Colonies in North America*, 56.]
9. What was the bounty system as applied to the colonies ? Are bounties granted in the United States today ? What were the advantages or the disadvantages of the system ? [Lord, *Industrial Experiments*, part 2 ; A. Hamilton, *Report on Manufactures* in Taussig's *State Papers and Speeches on the Tariff*, 79-103.]
10. Why were there so many smugglers in England at this time ? [Beer, 131.]
11. Did the price of tobacco rise or fall during the colonial period ? Were the price fluctuations caused by the "enumeration" of tobacco ? [Beer, 50 ; Ashley in *Quarterly Journal of Economics*, XIV, 11.]
12. What was the three-cornered trade with Africa ? [W. B. Weedon, II, chap. 12, S. E. Forman, *Side Lights on Our Social and Economic History*, 110-116.]
13. By writing the names of products on a map of the American Colonies show in which colonies the following were extensively produced : tobacco, rice, sugar, rum, beaver hats, codfish, pig iron, naval stores. Include the word "shipbuilding" where it was carried on.

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CHAPTER VIII

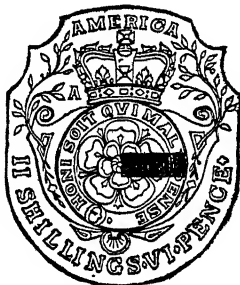
REVOLUTION AND REORGANIZATION

Non-acquiescence in the enforcement by England of the commercial restrictions upon the colonies gave rise at once to the problem as to the form which such resistance should take. When the Revolution finally occurred, the further problem arose as to how this should be financed. Peace in turn brought serious problems of domestic reorganization and of foreign commercial policy. Along both these lines a short period of painful experimentation was followed by the establishment of what has proved to be a permanent policy.

English policy of taxation.—Until 1763, as has been pointed out, the commercial restrictions imposed by England upon the colonies had been largely evaded or unenforced. By the conclusion of the Seven Years' War, in 1763, the fear of hostilities from the French had been removed and free scope given the colonists to devote themselves to material expansion, an opportunity of which they had been quick to avail themselves. The industries of the country had rapidly developed and an enforcement of the earlier restrictive legislation would have entailed great hardship.

Just at this time, however, changes were taking place in England which led to the insistence upon a stricter colonial policy. The beginnings of the industrial revolution made English manufacturers more eager than ever to monopolize colonial markets and stifle competition. It seemed only fair, moreover, that in the future the expenses of such wars as that with France, waged partly because of the colonists, and of the frontier conflicts with the Indians, should be borne, in part at least, by those benefited. Accordingly, a more vigorous policy of colonial taxation began to be enforced by successive English ministries.

Imposts in the colonies.— Under the leadership of Grenville, the prime-minister of the time, Parliament passed the Sugar Act of 1764, by which duties were laid upon indigo, coffee, wines, silks, and other East India and Oriental goods, calicoes, etc., imported into the American colonies, and the existing duty upon sugar from the non-English West India islands was raised, and that upon molasses, which had previously been unenforced though prohibitory, was lowered and placed upon a revenue basis. At the same time the colonists were absolutely forbidden to import rum or spirits from foreign countries, or to trade with the French West Indies. These measures affected New England especially and caused the utmost discontent in that section. Moreover, the laws were enforced most rigidly, even the naval vessels being used as revenue cutters. A year later, in March, 1765, the Stamp Act was passed, by which it was designed to raise money from the colonists for the maintenance of the soldiers in the colonies. Although this was repealed in the following year because of the opposition it aroused, it was followed, in 1767, by the so-called Townshend Acts, which provided among other things for a colonial revenue from an import duty on wine, oil, glass, paper, lead, painters' colors, and tea, imported into the colonies. Because of the increasing discontent in the colonies and the complete failure of the Townshend Acts as a revenue measure, they were repealed after two years, with the exception of the duty of 3d. a pound upon tea, which was retained as a proof of Parliament's right to tax the colonists.



BRITISH TAX STAMP

One of the stamps to be used on legal documents in America under the Stamp Act of 1765, by which Parliament calculated to raise about £100,000 in taxes from the colonists.

Non-importation as a means of protest.— The right of England to regulate the commerce of the colonies had not been seriously questioned before 1763, and the principle of

the various navigation acts had been acquiesced in, with but little complaint, by the colonists. And even now forcible resistance or armed revolution was a long way off. At first the colonists resorted to what appeared to be the only peaceful method of protest, non-importation agreements. The first of these was entered into in October, 1765, by the merchants of New York, Massachusetts, Rhode Island, and Pennsylvania. They agreed to import no goods from Great Britain; to countermand orders already given; and to refuse to sell British goods sent on commission, until the Stamp Act of 1765 should be repealed. At the same time the people generally agreed to abstain from the use of goods which were not of domestic manufacture, and in other ways to promote domestic manufactures as far as possible.

As a result of these agreements the demand for British goods fell off, merchants curtailed their shipments, and English manufacturers were even compelled to close their mills. English merchants joined with colonial legislatures in demanding the repeal of the obnoxious measure that had caused all this distress. On this point Adam Smith wrote: "The expectation of a rupture with the colonies struck the people of Great Britain with more terror than they ever felt for a Spanish Armada or a French invasion," and "rendered the repeal of the Stamp Act, among the merchants at least, a popular measure." The pressure thus applied was successful and the Stamp Act was repealed in 1766.

The second non-importation association.—Although Parliament had repealed the offending legislation, the king and his cabinet were determined to vindicate the right of Parliament to derive a revenue from the colonies. The Townshend Acts were accordingly passed, which provided for the enforcement of the trade regulations, imposed duties on various articles imported into the colonies, and arranged for the payment from these revenues of the governors and judges, in order that they might be independent of the colonial assemblies. These measures aroused fierce resentment throughout all the colonies, and systematic and official

resistance was directed against the unpopular measures. The first attempt at non-importation was so successful that in 1769 a second agreement was made by the merchants and people in nine of the colonies to "boycott" English goods. Their purpose was to exert a pressure upon English exporting merchants, which would cause them to petition for the repeal of the objectionable acts, and in this they were successful. Exportations to the New England and the Middle colonies fell off almost two-thirds; those to the Southern colonies, which were economically more dependent upon England, remained almost constant. This is shown in the following table: ¹

EXPORTED FROM GREAT BRITAIN TO	1768	1769
New England	£430,807	£223,696
New York	490,674	75,931
Pennsylvania.....	441,830	204,979
<u>Northern Colonies.....</u>	<u>£1,363,311</u>	<u>£504,606</u>
Maryland and Virginia	669,422	714,944
North and South Carolina	300,925	327,084
Georgia.....	56,562	58,341
<u>Southern Colonies.....</u>	<u>£1,026,909</u>	<u>£1,100,369</u>

Once more the demand for the repeal of legislation, which was ruining British trade, inciting resistance in the colonies, and not producing the anticipated revenue, compelled the ministry to yield and Parliament to repeal the offending measures. But again the right to tax the colonies was declared not to have been surrendered and the tax of 3d. a pound upon tea was retained as evidence of imperial authority.

The third non-importation association.—The trade in tea had long been granted as a monopoly to the British East India Company, which brought all its tea to London, where a duty of 1s. a pound was paid, and whence that needed in

¹ Pitkin, *Statistical View of the Commerce of the United States*, quoted from Macpherson, *Annals of Commerce*, III, 571-2.

the colonies was re-exported. That at least was the theory. In practice probably 90 per cent of all the tea consumed in the colonies, which was more than a million pounds a year, was brought directly from the Orient by colonial vessels or was obtained from Holland, in both cases without paying the British tax. Now a colonial tax of 3*d.* a pound was imposed, the laws against smuggling were enforced, and the imperial tax of 1*s.* a pound was remitted on all tea reshipped from London to the colonies. The tea brought over by the East India Company could now compete with that brought in by the illicit trade of colonial vessels, which, moreover, were now compelled to pay a tax for the first time. There was added therefore, to the political dislike of taxation without representation, the commercial resistance of those whose profitable trade was interfered with. It was John Hancock the "prince of smugglers," who organized the Boston tea-party.² As a punishment for this act of defiance the port of Boston was declared closed, an act which threatened her prosperity, if not her existence.

The other colonies immediately rallied to the support of the beleaguered city, and in various ways assisted her. They made common cause by agreeing to cease all relations with Great Britain until the offending legislation should be repealed. But, to make it thoroughly effective, such action must be generally enforced. Accordingly, a third suspension of commerce with Great Britain was officially ordered in 1774 by the first Continental Congress. They unanimously resolved that after December 1st of that year "there should be no importation into British America from Great Britain or Ireland, or from any other place," of any goods, wares, or merchandise exported from Great Britain or Ire-

² According to D. A. Wells, "The colonists were a nation of lawbreakers: nine tenths of the colonial merchants were smugglers. One quarter of the whole number of the signers of the Declaration of Independence were bred to the contraband trade. John Hancock was the prince of contraband traders, and, with John Adams as his counsel, was on trial before the Admiralty Court in Boston at the exact hour of the shedding of blood at Lexington, to answer for half a million dollars' penalties alleged to have been by him incurred as a smuggler." [*Lalor's Cyclopaedia of Political Science* I 75.]

land. A further resolution was later passed "that from and after September 10, 1775, the exportation of all merchandise and every commodity whatsoever to Great Britain, Ireland, and the West Indies ought to cease, unless the grievances of America are redressed before that time" ; exceptions were made only of tobacco and rice, to secure the adherence of Virginia and South Carolina. Twelve of the thirteen colonies adopted these resolutions and they were everywhere carried out with the strictest fidelity. Vigilance committees were appointed to enforce these agreements, and the boycott was more generally observed than on the two previous occasions. Imports from Great Britain fell off from £2,590,437 in 1774 to £201,162 in 1775. From the large importations of the former year it was evident that the colonies were well supplied with British goods for even a lengthy boycott. This decline in trade was a severe blow to English manufacturers and merchants and again the ministry was flooded with petitions for repeal. But this time matters moved too rapidly.

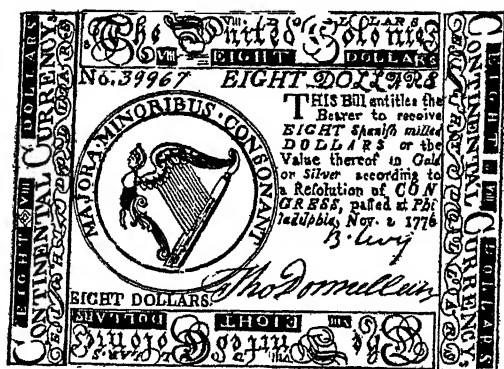
Parliament answered these resolutions by declaring Massachusetts to be in a state of rebellion, ordering additional troops to America, and later forbidding the colonies to trade with any part of the world except Great Britain and the British West Indies. The New England colonists were also forbidden to fish along the Grand Banks. But before this legislation became effective the Revolution had begun. The non-importation agreement of the colonies, however, remained in force until April 6, 1776, having been modified the previous year to admit only the importation of munitions of war ; on this date the new Congress threw open the commerce of the colonies to all the world except Great Britain.

Causes of the Revolution.— The causes of the Revolution were several, but the economic factors were fundamental and important. The surface causes were for the most part political grievances, and the agitation concerning political rights occupied the attention of contemporary and later writers more than the deeper and obscurer economic causes.

It is not necessary to underestimate the importance of the political principle involved ; namely, that the colonists were entitled to the same rights as Englishmen at home and that they ought not to be taxed by a Parliament in which they were not represented. But the colonists objected not merely to taxation without representation ; they were unwilling to pay taxes at all. Living in a dispersed and unorganized society, in which each man was accustomed to do most things for himself and organized governmental activities were infrequent, the colonists were unaccustomed to taxation and they resented it. This was true not merely of their attitude to the English government, but even to the Continental Congress and the Confederation, when these attempted to collect revenues by means of taxation. Their unwillingness to be taxed was accentuated, according to Callender, by the economic depression which prevailed in nearly all the colonies during the decade before the Revolution owing to the vexatious interruptions and uncertainties in the accustomed lines of trade. It is clear that the well-being of colonies that depended so largely upon foreign trade for their prosperity must have been affected by the interference with commerce which resulted both from the more rigid enforcement of English measures and from their own policy of non-importation.

The commercial policy of England towards the American colonies has already been sufficiently described, but mention may again be made of a few of the more important phases of this policy. The prohibition of westward expansion by the royal Proclamation of 1763 angered the people of Virginia with their western claims, the pioneers, and the land speculators. To the Sugar Act of 1764, which practically destroyed the lucrative business of rum distilling in New England, with all the other branches of trade connected with it, must be attributed much of the irritation that found expression in resistance to the Stamp Act a year later. The rigid enforcement of the British revenue laws and the consequent interference with the well-organized illicit trade car-

ried on by the colonists increased the dissatisfaction. And finally, the legislation in 1751 and 1764 against the issue of colonial paper money, while doubtless financially sound in principle, had aroused intense resentment and had ranged against the crown all those forces in the community which demanded cheap and abundant money. When revolution flamed out these dissatisfied elements were immediately ranged on the side of the revolutionists.



CONTINENTAL PAPER MONEY

The Continental Congress was not given the power to tax the people, and consequently was compelled to issue paper money in order to carry on the war. In the five years, 1775-1779, more than \$241,000,000 was issued, and it finally became almost valueless. "Not worth a continental" was synonymous with utter worthlessness.

Financial resources.— When war broke out, the colonies had neither arms nor ammunition, nor money wherewith to purchase them or pay soldiers. In general there are only three methods open to a nation in time of war for raising revenue. These are the issue of treasury notes, taxation, or borrowing. The Continental Congresses resorted to all three of these policies, but the first was their chief reliance and was the one first used. It must be remembered that the Continental Congress was only an emergency body, with little authority and no compelling power for the collection of taxes, and therefore had to resort to any device that seemed

capable at the time of yielding revenue. Almost with the beginning of hostilities, in June, 1775, Congress authorized the first issue of paper money to the amount of \$2,000,000. These were based upon the credit of the States, and were to be redeemed by them after 1779 in silver. By November 29, 1779, the total emissions were \$241,552,780. At this point Congress became alarmed at its own actions and limited the amount in circulation to \$200,000,000. As the paper money issued was greatly in excess of the needs of the people and the States failed to support their credit, the bills began early and rapidly to depreciate, and prices of all commodities and services to rise correspondingly.

When Congress limited their amount a paper dollar was worth but two or three cents in specie. The following year Congress provided for their redemption at the rate of forty to one in bills of new tenor. These new tenor bills in turn depreciated to about 5 to 1 in specie, so that the old tenor were now worth 200 to 1. About \$119,000,000 was paid in by the States under this law and destroyed. Of the remainder, \$6,000,000 was subscribed for bonds under the Funding Act of 1790 ; the balance was probably lost or destroyed. In addition to the continental currency the States issued their own paper money to a total of \$209,524,776, of which Virginia and the Carolinas together put out more than three-fourths. These State issues competed with the continental paper notes, and hastened the depreciation of both.

Congress had no power to impose taxes or to compel the States to contribute ; it could ask for money, but its requests were scantily honored. Even had the States been willing to resort to taxation it would have been impossible to raise the large sums necessary for war expenditure in this way. But they were not willing, since the very war itself was directed against taxation. Congress did succeed in raising some small amounts, however, by requisitions or assessments upon the States, to be paid in specie or supplies, though the system was very ineffective. More important were the loans

which Congress was able to make, both at home and abroad. Between 1777 and 1783 they borrowed much needed sums from France, Holland, and Spain, which were received for the most part in the form of supplies and a little specie. It may fairly be said that without the invaluable assistance of France, by her loans as well as by her army and navy, the Revolution could not have been won.

Financial reorganization.— The declaration of peace did not solve the financial difficulties of the new government. Industrial unrest and depression followed, and in spite of the disastrous experiences with the continental currency, seven of the States plunged afresh into paper money emissions during the years 1781 to 1788. Accordingly, when the Constitution was adopted the emission of bills of credit by the States was forbidden and an end was put to the issue of government paper money for seventy years. The right to issue paper money was, however, not expressly denied to the Federal government, and advantage was later taken of this fact. A national coinage system was adopted in 1792, which provided for the decimal system of coinage and a double standard for silver and gold at a ratio of fifteen to one.

During the revolutionary period the Bank of North America had been established, and by 1787 two others had been chartered, but with the formation of the new government there was need for a strong central financial institution which should be able to act as the fiscal agent of the government. Accordingly the First United States Bank was chartered in 1791 for twenty years, with a capital of \$10,000,000, of which the government subscribed one-fifth. It was of great service to the treasury department in making loans and acting as a depository and transfer agent of the public funds. This institution was later supplemented by the organization of State banks.

But the most important financial change effected by the new Constitution was the establishment of a strong central government and the grant to it of adequate powers of levying and collecting taxes and of borrowing.

Efforts towards freedom of trade.— In 1776, as stated above, the American ports were thrown open as far as possible to European trade, though British warships and privateers rendered such trade extremely hazardous, except to the districts controlled by the British army, into which British goods were imported in considerable quantities. During this period there were no duties nor restrictions upon foreign commerce with other nations in any of the American States, except Virginia. The Revolution was primarily a struggle for freedom of commerce, and consequently there was no desire to limit foreign trade. For instance, the French alliance of 1778 promised to provide for our commercial relations on the “most perfect equality and reciprocity.” After the war, accordingly, an effort was made to realize general free trade with all nations. It was believed that our trade was so important to the nations of Europe that they would consent to abolish their restrictions upon foreign trade in our favor rather than lose it. Nor was the desire for universal free trade based merely upon sentiment; it would have been commercially most profitable.

Up to this time the nation had been primarily agricultural and commercial, and there was little thought that the United States would ever become a manufacturing nation, economically self-sufficing. Consequently, freedom of trade with other nations was eagerly sought for until about 1784. Indeed Stanwood, an ardent protectionist, believes that had the Constitution been drawn up in 1782, “it is not unlikely that it would have contained a prohibition of all laws in restraint of trade, foreign or domestic.”

Failure of efforts.— The only countries with which Congress was able to make treaties guaranteeing reciprocal commercial privileges were Prussia and Sweden; France and Holland made commercial treaties, though not on this basis; but Spain and Portugal refused to accede to our overtures. An attempt was made by Jay to secure some reciprocal provision from England in the treaty of peace in 1783, but unsuccessfully. Indeed, after the defeat of Pitt's effort to

secure freedom of trade between the United States and the British colonies, Parliament proceeded to exclude American vessels from the British West India trade by admitting only British-built and manned vessels to the islands, and to subject American ships in other British ports to heavy tonnage dues. In addition, France and Spain in 1783 closed their West Indian ports to American ships. The loss of the West Indian trade was a particularly heavy blow to the United States, for even from early colonial times it had been a most valuable branch of our commerce. Fish, meat, flour, and lumber had been exported from the New England and the Middle colonies to the West Indies, with the proceeds from which, in bills of exchange, goods had been purchased from England. As these colonies had little to export directly to England, without this trade they could not have paid for their imports from that country; in 1769 the total colonial trade with the West Indies amounted to £1,537,664. The economic prosperity of the United States therefore still depended in large part upon the trade with the West Indies.

Furthermore, even in direct trade with Great Britain American ships were permitted to carry goods produced only in the particular States of which their owners were citizens.³ As only one-fourth of the Southern shipping was owned by residents of that section, this was almost equivalent to forbidding Southern exports to Great Britain except in British vessels, or to a re-enactment of the old navigation laws.

Two other branches of foreign trade still remained open to American shippers and these were the trade with the Mediterranean countries of Europe and with the Orient. These had been very profitable during the colonial period. But when our vessels attempted to regain these markets after the Revolution, they were captured by the Barbary pirates. The protection of the powerful British navy was now lacking, and the Congress of the Confederation was too weak to resist the pirates. Even after the Constitution was adopted im-

³ Marvin, *The American Merchant Marine*, p. 31.

munity from attack was obtained only by paying tribute, until we made war upon them in 1802.

Economic depression.— In spite of the closing of foreign markets to American ships or goods, British manufactures were imported in large quantities after the declaration of peace. Several important consequences followed from this situation. In the first place, the means of payment with which the colonists had purchased British goods or West India sugar and similar commodities during the colonial period were now lacking. Then the colonists had used the specie and the bills of exchange which they obtained in the West Indies for products sold there, or they had exchanged goods against goods. Now that they could not avail themselves of either of these methods on any considerable scale they had to export their specie. But this was insufficient to pay for all their imports, and they came to be heavily in debt to foreign merchants. In this emergency they did two things : they passed stay laws or moratoria, suspending the right of creditors to collect debts for a certain period, and in all the States but four they issued paper money to take the place of the vanishing specie. Unfortunately these remedies only made matters worse.

A second result was the ruin of many of the struggling manufactures which had sprung up during the Revolution ; the workmen were thrown out of employment and the owners suffered heavy losses. Another effect of the hard times was a great increase in emigration to the West. Beginning with about 1784 a steadily growing stream of soldiers with military scrip, debt-burdened farmers and artisans from the Atlantic seaboard, and adventurous pioneers combined to fill the western country with one of the most composite populations to be found in the United States ; by 1790 there were about 200,000 persons in the territory west of the Alleghenies.

But even in the West the people were having trouble. The profitable flatboat trade which they had carried on with New Orleans by way of the Ohio and the Mississippi rivers

was suddenly closed to them by Spain in 1783. When they asked Congress to compel Spain to open the river to their trade, they received little satisfaction. Indeed the merchants and the ship-owners of the Eastern States were willing to let Spain close the Mississippi if she would open the West Indies. The Western farmers were greatly incensed when they heard of this and talked of withdrawal from the Union. It was at this time that Washington wrote : "The Western States hang upon a pivot ; the touch of a feather would turn them either way."

Retaliation by the States.— It seemed as if the only effective method of securing equal trading privileges from Great Britain and the other European nations would be to engage in systematic reprisals. Because of the weakness of Congress under the Articles of Confederation such action was impossible by the central government, and although power to levy taxes and to regulate commerce was repeatedly asked for by Congress, it was never granted. Until 1789, therefore, the separate States undertook to regulate commerce and by retaliatory measures to obtain greater freedom. During the years 1780 to 1788 Pennsylvania enacted fifteen tariff acts ; Virginia twelve ; Massachusetts, New York, and Maryland, each seven ; Connecticut, six ; and the other States a smaller number. While those in the Southern States were chiefly for the purpose of revenue, the tariffs of the Middle and the New England States were dictated by motives of retaliation and protection. Discriminating tonnage dues and import duties were imposed by most of the States upon British imports, but as the duties varied all the way from five to one hundred per cent, and some of the States admitted such goods free of duty, British goods continued to flood the country through the free or cheapest ports. To make matters worse, the States finally began to wage commercial war upon one another, and to enact tariff laws which excluded one another's products.

Federal control of commerce.— It had now become evident that even if reprisals were desirable, it was impossible

to carry them out so long as each State controlled its own action with regard to foreign commerce. Unified action could never be secured until Congress should be made supreme in foreign relations. Moreover, the mutual jealousies of the States were daily making some plan of central control more necessary. At the same time American industries had been developing and a growing desire for protection of our manufactures began slowly to replace the idea of retaliation. The growth of new industries, it was thought, would lessen our industrial dependence upon England, which meanwhile showed no signs of removing her commercial restrictions.

Accordingly a commercial convention assembled at Annapolis, in September, 1786, to consider the trade of the United States ; but, as several of the States were not represented by delegates, they recommended that another meeting be held at Philadelphia in 1787. This was approved by Congress, and in May of that year the constitutional convention met for its important work, and by September had formed the Constitution to take the place of the discredited Articles of Confederation. This was finally adopted by the States in 1789.

By the Constitution the control over foreign commerce was vested solely in Congress, thus laying the foundation for a unified and splendid development.

By the first tariff act under the new Constitution, a rebate of 10 per cent was allowed on all imports in American vessels, while special encouragement was given to the China trade by making the duties on tea brought direct from the Orient in American ships about one-half those on tea in foreign vessels or in American vessels if brought from London. This last was aimed at the monopoly of the English East India Company. By the second act of Congress (July 4, 1789) further protection was given to American shipping by the following discriminating tonnage dues :

On all American-built, American-owned vessels, per ton	6 cents
On all American-built, foreign-owned vessels, per ton	30 cents
On all other vessels, per ton	50 cents

The shipbuilding industry was also encouraged by permitting registry under the American flag only to vessels built in the United States. This provision remained in force until 1912.

SUGGESTIVE TOPICS AND QUESTIONS

1. Was Grenville's contention that the colonists should pay a portion of the expense incurred in their defense just? [G. O. Trevelyan, *History of the American Revolution*, I; G. E. Howard, *Preliminaries of the Revolution*, chap. 6.]

2. Why did the Sugar Act of 1764 especially affect New England? [K. Coman, *Ind. Hist. of U. S.*, 94.]

3. Was the Stamp Act unfair? What are the advantages and the disadvantages of a stamp duty? Do we have such taxes today? [J. Fiske, *The Revolution*, I, 14-27, G. E. Howard, chaps. 7, 8.]

4. Were non-importation associations a good method of protest? Did they resemble the Consumers' League of today? How? [Howard, see Index; K. Coman, 94-103; W. D. P. Bliss, *New Encyclopedia of Social Reform*, art. Consumers' League.]

5. Were privateers valuable in aiding us to obtain our independence? Are they used in modern warfare? Why? [E. Schuyler, *American Diplomacy and Commerce*, 371-403; J. W. Foster, *Century of American Diplomacy*, 93.]

6. Was the issue of continental paper money necessary? Was its repudiation inevitable? [D. R. Dewey, *Financial History of the United States*, 41-43; W. G. Sumner, *American Currency*, 43-60.]

7. What are the meaning and the origin of the expression "not worth a continental"? [H. White, *Money and Banking*, 126.]

8. Why did the States issue paper money during the years 1781-1788? [J. Fiske, *Critical Period*, 168-186; McLaughlin, *Confederation and Constitution*, chap. 9.]

9. Give some examples of "commercial war" between the States. [J. Fiske, *Critical Period*.]

10. Why did not Rhode Island enter the Union at the same time as the other States? [Fiske, *Critical Period*, 345; F. G. Bates, *Rhode Island and the Formation of the Union*.]

11. What provision in the Constitution regulates the issue of paper money by the States? Why was it inserted?

12. What clauses of the Constitution give Congress the right to regulate commerce with other nations?

13. Why did the efforts of the United States to secure freedom of trade with other nations fail? [E. Stanwood, *Tariff Controversies*, I, chap. 2.]

14. Describe more fully the relations of the United States with the Barbary pirates.

15. Describe the case of *Trevett vs. Weeden*. [Bancroft, *History of the United States*; Brinton Coxe, *An Essay on Judicial Power and Unconstitutional Legislation*.]

16. Describe Shays' Rebellion. [George R. Minot, *The History of the Insurrectionists in Massachusetts, in the Year 1786*, John S. Barry, *History of Massachusetts*.]

17. Subjects for debates: Resolved that (1) King George III was to blame for the Revolution; (2) Independence was the only solution of the dispute between England and the colonies.

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CHAPTER IX

NEUTRALITY AND FOREIGN TRADE

With the outbreak of the war in Europe the problem was presented to the people of the United States as to how they could best adjust their economic organization to take advantage of the new opportunities. But the position of neutral was not without its dangers and the problem soon arose as to the proper attitude toward indignities offered by the European belligerents. Relations toward the non-belligerent nations also called for adjustment.

Continental wars and the carrying-trade.—Beginning almost with the formation of the new government there was a complete shifting of economic interests, and the growing demand for protection to manufactures quickly gave way before the expansion of commerce that occurred. The same year that saw the establishment of our present form of government witnessed the French Revolution. In 1793 war broke out between France and England and spread until it finally involved all the nations of Europe. For more than twenty years the best energies of these peoples were devoted to destruction and warfare. These events made American merchants, who throughout the struggle occupied a position of neutrality, and at the same time possessed the only considerable neutral merchant fleet, the principal carriers of the trade between the warring nations and their colonies. Few ships except those of Englishmen or Americans were found on the high seas — the former because England was the undisputed mistress of the seas, in contrast with her enemies, and the latter because of their neutral position. After 1795 France abandoned the policy of maintaining her fleet on a footing of anything like equality to that of England, but trusted to privateers to prey upon British shipping. Fren

merchant vessels were left unprotected and their number declined until there was literally not a single merchantman flying the French flag to be found on the seas. The chief effect of this was to throw into our hands the carrying-trade between France and her allies and their colonies. As a recent writer puts it: "While the great commercial nations were fighting one another for the carrying-trade of the world America ran away with the bone over which they were quarreling."

Rights of neutral trade.— But under the prevailing principles of international law, the rights of neutrals were but little respected. According to the Rule of War of 1756, a neutral could not enjoy in time of war a carrying-trade which was prohibited in time of peace. Great Britain therefore proceeded against such of our vessels as attempted to trade with the French West Indies, which had previously been closed to us. As trade from the British West Indies to the United States had been prohibited since 1783, this section was practically closed to legitimate commerce. Moreover, provisions were then considered contraband of war, and both the French and the British governments ordered the capture and condemnation of neutral vessels carrying food-stuffs to the enemy's ports.

An even more irritating claim of Great Britain was the right to impress British sailors found on American vessels for service on their men-of-war. That there was some justice in this claim is evidenced by Gallatin's estimate that half of the sailors on American ships were British subjects. Jay's treaty between the United States and Great Britain did not settle these difficulties, while it greatly irritated France, almost to the point of war. France claimed that by the terms of the French alliance of 1778 we had agreed to make common cause with her against Great Britain in the event of a war. The nation was greatly offended by our policy of neutrality, proclaimed by Washington, openly insulted our government, and was all but at open war with us from 1798 to 1800. In the year 1798 Congress declared the treaty of

1778 at an end, and we were freed from foreign entanglements.

The harvest from neutrality.—In spite of these embarrassments, the carrying-trade of American shipowners showed an enormous expansion during the period from 1793 to 1801. Our total foreign trade increased from \$48,000,000 in 1791 to \$205,000,000 in 1801, while our exports increased from \$19,000,000 to \$94,000,000. There was a large and steady demand for agricultural products for exportation to the belligerent countries, and the prices of wheat, corn, and meat were very high. The profits from the production and freight of these goods were enormous.

At the same time much of the trade between the belligerent nations and their colonial possessions was thrown into the hands of American shipowners. In spite of the proclamation by England of the Rule of War of 1756, the products of the French, the Spanish, and the Dutch East and West Indies were either carried directly to Europe or were first shipped to the United States and then re-exported. While none of the United States ports lay on the direct route between South America or the West Indies and Europe, the fact that this route was favored by the trade winds and Gulf Stream made the roundabout voyage but little longer in point of time. Furthermore, by calling at an American port, re-shipping the goods, and taking out fresh papers, the danger from English privateers was removed for ships not carrying contraband goods; drawbacks of the import duties were of course allowed on all re-exports from the United States. In 1801 nearly one-half of our exports were re-exports.

Expansion of American shipping.—The development of the carrying-trade received a temporary check during the Peace of Amiens (1802), which left France, Holland, and the other European nations free to carry on their own trade, but upon the renewal of war in 1803 our commerce again expanded until 1807, when it amounted to \$247,000,000: imports, \$138,500,000; exports, \$108,300,000. It has been estimated that the freight earnings of American vessels

amounted during this period to about \$32,500,000 per annum. Under this stimulus the tonnage of American vessels engaged in foreign trade increased from 346,254 tons in 1790 to 744,224 tons in 1805 ; during the same time the percentage of foreign trade carried in American bottoms increased from 25 to 91 per cent. As early as 1793 the tonnage of the United States exceeded that of any other nation except England. The shipbuilding industry also received its share of this general prosperity : between the years 1798 and 1812 more than 200,000 tons of American-built shipping were sold to foreigners. As Pitkin says : "The increase of American tonnage, during the period under review, has no parallel, in the commercial annals of the world."

Effect upon agriculture.— But the effect of the continental wars was not confined to shipping and the carrying-trade. A European market was created for the food-stuffs of the United States. The belligerents were too busy fighting to raise all the necessary food themselves, and moreover the free export of grain from the Baltic regions, then the granary of Europe, was prevented by Napoleon. The war demand for the agricultural productions of this country raised their prices to extreme heights. Thus the price of flour at Philadelphia averaged \$9.12 a barrel from 1793 to 1807, while for nine years previous it had been only \$5.41, and for nine years afterwards was \$5.46. There was also a growing demand for meat, for cotton and wool, and other raw materials. The production and sale of these products meant enormous profits for American farmers as well as shipowners, and was speedily reflected in the enhanced price of lands. According to official valuations by the Federal government, the price of lands advanced more than \$950,000,000 between 1799 and 1815. Of course other factors were operative, such as the increase of population, the clearing of new lands, etc., but no small part may be attributed to the profitability of agriculture during the greater part of this period. The annual exports of articles produced in the United States averaged a little under \$40,000,000 between 1796 and

1807 ; in 1800 the per capita value of this domestic produce was almost \$9. From whatever aspect we look at the developments of this period, it is evident that the American farmer and the shipowner were profiting largely at the expense of the European belligerents. Moreover the profits obtained from these sources were used to develop our resources and improve our agriculture still further.

Blows at neutral trade.—The expansion of American commerce received a serious check in 1807 as a result of the various English Orders in Council and Napoleon's Berlin and Milan decrees, which were directed against the neutral trade. As we had especially profited by our position as neutral before, so now our prosperity was most disastrously affected. The English Orders in Council of August, 1804, had declared all French ports, from Ostend to the Seine, to be in a state of blockade, which was extended by the Order of May, 1806, to all the coast from the river Elbe to Brest. While this was largely in the nature of a "paper blockade," it made neutral vessels trading with such ports liable to capture. The English government hoped in this way to deprive France of needed supplies from her colonies, and at the same time to stifle the alarming growth of the American carrying-trade. Napoleon, whom the battle of Jena had made master of the continent, retorted with the Berlin decree of November, 1806, which declared the British islands in a state of blockade and forbade all trade with them ; further, no vessel which had touched at an English port was to be permitted to enter any port of France.

This was quickly followed by other British Orders in Council during 1807, which declared all ports belonging to France or her colonies or allies to be in a state of blockade, and stated that no neutral vessel could trade with them unless it first entered a British port, took out a British license to trade, and paid re-export duties. In answer to this, Napoleon issued the Milan decree, in December, 1807, which declared every ship sailing to or from Great Britain or her colonies to be a good prize, and that every ship which sub-

mitted to the English orders was denationalized and liable to seizure. These decrees were directed against all neutral trade and were dictated by a desire not so much to harm that as to injure the antagonist who was profiting by this neutral trade. But the United States was the only neutral carrier of importance and naturally felt the full force of these decrees. "Had we carried but our own produce," cried Jefferson, "and brought back our own wants, no nation would have troubled us." Privateers were licensed by England and France and their allies, and seized many a rich prize; less was done by ships of war. About 1600 American vessels and \$60,000,000 worth of property were captured by French, English, and other privateers.

Embargo and Non-Intercourse Acts.—As a peaceful mode of retaliation for the injuries inflicted on American shipping, a non-importation act had been passed by Congress, in 1806, directed against England and her colonies, which was to become effective in November, 1807. Before that time its operation had been postponed until December, and its repeal or non-enforcement was generally expected. Jefferson, who above all things desired peace, had also endeavored to conclude a treaty with England in 1806, but had not been able to secure a satisfactory adjustment of the matters in dispute. When, however, the news of these various indignities reached the United States, Jefferson recommended to Congress that an embargo be placed on American shipping or, as he expressed it, "an immediate inhibition of the departure of our ships from the ports of the United States." The Embargo Act, passed December, 1807, prohibited American vessels leaving the ports of the United States for those of any foreign power. Foreign vessels could depart from the United States only in ballast or with the cargo which was on board when the law was passed. American vessels might engage in the coasting trade, but in that case they must give bonds to twice the value of the ship and cargo that the cargo would be landed in the United States. Later acts placed the navy and revenue cutters at

the disposal of the executive and gave him almost despotic powers in dealing with both foreign and domestic trade.

The effect of the embargo was immediate and most disastrous upon our foreign trade : in a single year our exports fell from \$108,300,000 to \$22,400,000. "In the large shipping towns," writes McMaster, "business of every kind fell off, and soon utterly ceased. The rope walks were deserted. The sail-makers were idle. The shipwrights and draymen had scarcely anything to do. Pitch and tar, hemp and flour, bacon, salt fish, and flaxseed became drugs upon the shippers' hands. But the greatest sufferers of all were the sailors." It was estimated at the time that 30,000 seamen were thrown out of employment and that in all 100,000 men were out of work for a year. The farmers, too, who had been buying land on credit and raising greater crops in expectation of the foreign demand, soon began to feel the effects, and many of them were forced into bankruptcy. Lumbermen and fishermen, and finally merchants, were ruined by the stoppage of trade with the outside world. The jails were filled with debtors, while a contemporary visitor to New York describes that city as if ravaged by pestilence, so dead was its commerce. The effects of the embargo were most severely felt in New England and New York, where foreign commerce was greatest, but even in the South and the West they were disastrous.

Domestic manufacture, on the other hand, was greatly stimulated by the cutting off of foreign supplies, and household production was revived on a wide scale. Gallatin, the Secretary of the Treasury, commented in 1809 on the extraordinary increase of household manufactures during the two preceding years, and thought it "probable that about two-thirds of the clothing, including hosiery, and of the house and table linen, worn and used by the inhabitants of the United States who do not reside in cities, is the product of family manufactures."

So strong was the opposition to the embargo that Jefferson finally yielded to the pressure, and fourteen months after

its enactment the embargo was repealed. In its place was substituted the Non-Intercourse Act of 1809, which removed the embargo upon American shipping and instead adopted the policy of non-intercourse with England and France. As a result of these acts, not merely was our commerce seriously affected, but our treaty relations were strained or broken.

The War of 1812.— When the embargo gave way to non-intercourse, American commerce quickly responded to the opportunity, and in 1810 the tonnage engaged in the foreign trade was 981,019 tons, a figure not equaled again until 1847. But the evils against which the embargo had been directed continued unchecked : American seamen were still impressed by British vessels, and renewed restrictions were placed upon our neutral trade by both Napoleon and England. As a result of these continued acts we finally declared war against England in June, 1812. Because of her naval strength our foreign commerce could now be carried on only at great risk, and much of our shipping was destroyed. In three years we lost more than 1400 merchant vessels and fishing boats, and 1813 saw the tonnage engaged in foreign trade reduced to 672,700 tons, the lowest point reached since the year 1805. On the other hand, the five hundred odd American privateers which were commissioned by our government captured during this period more than 1300 British vessels.

The War of 1812 was a series of contradictions, and perhaps the greatest was the treaty of peace in 1814. None of the questions for which we had gone to war was settled definitely, but England ceased to impress our seamen, and the conclusion of the Napoleonic wars soon afterwards rendered unnecessary our contentions as to the rights of neutrals and the definition of a blockade. Our navy had won renown for itself and we had successfully asserted our commercial independence. The period of restriction between 1807 and 1815 had, moreover, called into existence other interests, and economic activities had been diverted into channels other than

foreign commerce, especially into manufactures and the development of the West.

Commercial treaties.—The first commercial treaty made by the United States, even before political independence had been gained, was with our ally France. By the treaty of 1778 we were granted commercial privileges in her ports, but this was suspended in 1798, when our relations with that country became strained. During the years 1798-1800 we were practically at war with France, but in the latter year Napoleon restored friendly relations and concluded a treaty of commerce and navigation, which secured reciprocity of treatment in respect to customs duties and tonnage dues. Because of French encroachments upon our commerce during the following years, the treaty had little practical value. Subsequent treaties were made with the Netherlands (1782), Sweden (1783), and Prussia (1785). This treaty of 1785, with Prussia, which provided for reciprocal duties and customs dues, continued in force, with slight modifications in 1799, for thirty years.

Our commercial relations with Great Britain remained disturbed after the Revolution and until the conclusion of the War of 1812 gained for us commercial, in addition to political, independence. The Jay treaty of 1794 granted to British merchants greater privileges than were given to Americans, and was so unpopular that its ratification by the United States Senate was obtained with difficulty. But during the Napoleonic wars commercial treaties did not suffice to protect American merchants or sailors from aggression; all treaty relations were seriously strained by the Orders in Council and the embargo, and were finally broken off by the declaration of war.

SUGGESTIVE TOPICS AND QUESTIONS

1. Why does the Neutrality Proclamation mark an epoch in the history of the United States? [McMaster, II, 89; A. B. Hart, *History Told by Contemporaries*, III, 305-7.]
2. What rights had a neutral nation in 1800? What today?

[Channing, chap. 15 ; *Encyclopedia Britannica*, art., International Law, last part.]

3. By whom were the continental wars waged, and how long did they last ? [G. P. Fischer, *Outlines of Universal History*, 515-43 ; J. H. Robinson, *History of Western Europe*, 593-624.]

4. Were there any important neutral nations other than the United States at this time ?

5. Describe the treatment of American ships and sailors by England and France. [McMaster, III, 200 ; Hart, *History Told by Contemporaries*, III, chap. 18.]

6. Was the embargo constitutional ? Was it wise ? What effect did it have on the economic development of New England ? [McMaster, III, 412 ; Marvin, chap. 7 ; Channing, chap. 16.]

7. How did the embargo affect the Southern States ? [Marvin, chap. 7 ; Channing, chap. 17 ; T. Pitkin, *History of the United States*.]

8. What were the English Orders in Council and Napoleon's Berlin and Milan decrees ? [McMaster, III, 421-427 ; G. P. Fischer, *Universal History*, 527.]

9. Describe our early trade with China. [J. W. Foster, *American Diplomacy in the Orient*, chap. 2 ; E. Schuyler, *American Diplomacy and Commerce*, 292.]

10. Debate : The War of 1812 was without any beneficial results for the United States.

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CHAPTER X

COTTON AND SLAVERY. AGRICULTURE

The problem of the South had been to find a profitable staple crop to take the place of the declining tobacco and rice culture. With the success of cotton growing the paramount problem became that of obtaining an adequate labor supply. In the North the problem was rather that of providing labor-saving devices and of eliminating unprofitable crops and processes.

The introduction of cotton culture.—Up to the time of the Revolution the culture of cotton had remained practically undeveloped. Other products, as tobacco in Virginia, rice in South Carolina, and pitch and tar in North Carolina, had proved more profitable. Under the English colonial system, moreover, cotton manufacturing for export was forbidden in North America. Even more important was the difficulty and the expensiveness of cleaning the fiber from seed and impurities. According to Whitney a man could separate the seed by hand from only about one pound of lint of the short staple variety, or about ten pounds of the sea-island cotton, in a day, which made the cost of cotton goods prohibitive for general use.

With the outbreak of the Revolution and the consequent demand for garments, together with the removal of colonial restrictions and the encouragement to manufactures, considerable stimulus was given to cotton production. Sea-island or long-staple cotton was introduced into the lowlands of South Carolina and Georgia in 1786, and proved well adapted to conditions there, so that its production increased rapidly. It could be cleaned of its seed by a simple roller gin; but the area suitable for growing it was limited, and attention was next directed to the development of the short-

staple or "upland" cotton on the interior lands. By 1789 the production of both varieties was estimated by Woodbury at 1,000,000 lbs. ; in 1790 at 1,500,000 lbs. ; and in 1791 at 2,000,000 lbs. Of this South Carolina produced three-fourths and Georgia most of the rest. At the same time, the improvements in cotton machinery in England had created a vastly increased market for raw cotton, the number of persons engaged in the spinning and weaving of cotton having increased from 7900 in 1760 to 320,000 in 1787.

Whitney's cotton-gin.—

The way was now open for the rapid development of cotton culture in the South; the only obstacle was the difficulty of cleaning the fiber. In 1792 Eli Whitney, a Connecticut school teacher, while visiting in Georgia, had his attention directed to the need of a machine for doing this work, and in April, 1793, succeeded in perfecting a cotton-gin by which the lint was picked from the seed by means of saw-teeth on a revolving wheel. By this machine 300 pounds of cotton could be cleaned by one person in a day, and immediately the demand for it spread throughout the entire cotton region. Mr. Whitney and the partner he associated with him, Mr. Miller, made the mistake of endeavoring to monopolize the production and the sale of the gins, but the planters would not wait for such a valuable invention to be



ELI WHITNEY

Whitney was born in Massachusetts in 1765 and graduated from Yale College in 1792. He then went to Georgia as a teacher and while there was asked by his neighbors, because of his known ingenuity, to make a machine for them that would clean the seed from the cotton, which at that time was done by hand. His efforts resulted in the cotton-gin, the most important machine ever invented in the United States. His patents were invaded and he made nothing from this invention, though later he acquired a fortune from the invention of firearms.

supplied so slowly and soon invaded his patents. The State of South Carolina granted him \$50,000 to secure the privilege of the gin for her citizens, and North Carolina about \$12,000, most of which was soon spent in wasteful lawsuits.

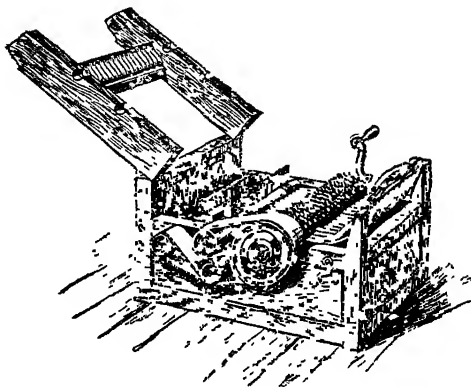
After the invention of the cotton-gin, American cotton, which had been dirty and poorly picked up to this time, became a popular and marketable commodity. The production and export increased by leaps and bounds, as will be seen from the appended table.

PRODUCTION AND EXPORTS OF COTTON			
YEAR	Production in United States (in lbs)	Exports from United States (in lbs)	Price per lb (in cents)
1790	1,500,000	..	14½
1795	8,000,000	6,276,300	36½
1800	35,000,000	17,789,803	28
1805	70,000,000	38,390,087	23
1807	80,000,000	63,944,459	21½
1810	101,000,000	93,361,462	16

So rapid indeed was the development of this new industry that when Jay negotiated the treaty of 1794 with Great Britain he apparently did not know that cotton was raised for exportation in the United States; he accordingly included it among the articles not to be exported from the United States in American bottoms. The Senate, however, did not agree to this provision.

Decline of slavery.—After the Revolution slavery declined, not only in the North, where by 1804 legislation had been passed in all the States providing for its ultimate abolition, but in the South also. Except on the rice and indigo plantations of the Carolinas and Georgia the economic disadvantages of slave labor were so apparent that many prominent Southerners favored its early abolition. By 1796 Virginia, South Carolina, Georgia, North Carolina, and Maryland, of the Southern States, had all forbidden the importa-

tion of slaves. Indeed, so far had the movement towards the extinction of slavery proceeded by 1794, that Tench Coxe was able to write in that year: "The separate American States (with one small exception) have abolished the slave-trade, and they have in some instances abolished Negro slavery; in others they have adopted efficacious measures for its certain but gradual abolition. The importation of slaves is discon-



WHITNEY'S COTTON GIN

Until Whitney's invention the seeds had been removed from the cotton either by hand or by the roller mill. Now the cotton was forced by toothed cylinders through wire ribs, which separated the seeds from the lint. In a day a slave could clean by hand 1, by the roller mill 10, and by the cotton-gin 300 pounds of cotton.

tinued, and can never be renewed so as to interrupt the peace of Africa, or endanger the tranquility of the United States." Even from Georgia came the statement by a representative in the fifth Congress: "Not a man in Georgia but wishes there were no slaves; they are a curse to the country." The fall of the price of slaves was a further evidence of the growing unprofitableness of slavery: in 1790 the best hands could be bought for \$200 each.

The following quotation from the journal of Philip Fithian, a Princeton student and a tutor to a rich family in Virginia in 1774, gives an enlightened view of slave labor on a great plantation during this period: "After supper I had a long conversation with Mrs. Carter concerning Negroes in Virginia, and find she esteems their value at no higher rate than I do. We both concluded (I am pretty certain that the conclusion is just) that if in Mr. Carter's, or

in any Gentleman's estate, all the Negroes should be sold, and the money put to interest in safe hands, and let the land which these Negroes now work lie wholly uncultivated, the bare interest of the price of the Negroes would be a much greater yearly income than what is now received from their working the Lands, making no allowances at all for the risk of the Masters as to the crops, and Negroes." It is probable that, but for the invention of the cotton-gin and the consequent extension of cotton production, slavery would gradually have declined and disappeared through voluntary action.

Effect of cotton culture on slavery.— With the first development of cotton-growing, white labor was resorted to and was expected to prove adequate. The scarcity of such labor in the South, however, led to an early recourse to the use of slaves. The large slave-holders, too, eagerly seized the opportunity afforded by a new crop to employ their slaves in its production, for the former staple Southern crops — indigo and rice — were declining in importance. As soon as the culture of cotton was undertaken by slaves on an extended scale, the social odium attaching to manual labor by a white man diminished still more the supply of free labor, and made cotton from that time on essentially a slave product. The same causes operated to repel immigrants from the Southern cotton-fields, and made the South more and more dependent upon slave labor as the production of cotton became more important. The white farmers, who at first grew cotton, either bought slaves themselves and became planters, or tempted by the high prices at which they could sell their land, parted with their holdings and moved to the cheaper land on the frontier.

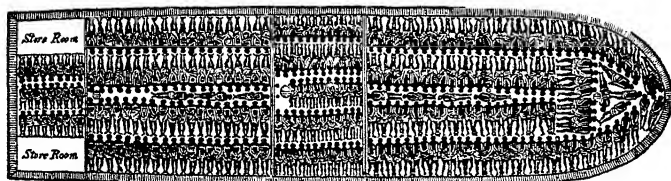
It has been frequently asserted by Southern writers that the success of cotton culture depended upon the existence of a supply of slave labor, and that the two were indissolubly connected. While the introduction of slave labor into the United States had, as we have seen, no connection with the production of cotton, it is true that the development of cotton culture at this time gave new life to a decaying institution

and furnished it with an economic reason for existence during the next half-century. But cotton would have been grown with free white labor, if slave labor had not been available.

Extension of cotton culture.—The movement towards abolition of slavery received a fatal check as soon as the cultivation of cotton was shown to be profitable in the South. The demand for slaves increased with the extension of cotton culture, and “side by side slavery and cotton pushed westward into the ‘back country’ of the Carolinas, across the pine hills and prairies of Georgia and Alabama, took complete possession of the alluvial lands along the Mississippi and Red rivers, and by 1860 were laying claim to the great central region of Texas.” At the beginning, in 1791, South Carolina and Georgia were the only important cotton-producing States. By 1801 Virginia, North Carolina, and Tennessee produced a scant quarter, and ten years later Louisiana added a little to the total production, but South Carolina and Georgia still produced three-fourths of the cotton grown in the United States.

The rapid rise in the price of cotton during this period greatly stimulated its production : from 14¼ cents a pound in 1790 the price steadily rose to 44 cents in 1799, because of the increasing demand in England and at home ; after this it declined somewhat, but remained far above the cost of production. The stimulus thus given to the extension of cotton culture may be judged when these prices are compared with the estimate of Woodbury that where lands and labor were low, 2 cents a pound for cotton in the seed, or 8 cents when cleaned, would pay expenses. The production of cotton consequently increased from 1,500,000 pounds in 1790 to 101,000,000 in 1810, while the exports rose from less than 200,000 pounds to 93,000,000 pounds respectively, for the same dates.

Growth of the slave trade.—The increased demand for slaves to be used as hands in the cotton-fields led at first to an extension of the slave trade and to fresh importations from Africa. Although the separate States had forbidden the



DECK PLAN OF A SLAVE-SHIP

The men were ironed in pairs by the ankles, and men and women were compelled to lie on their backs on the deck with their feet outward, the irons on the men being usually fastened to the deck. The space "between decks" where they were confined was about 3 feet 10 inches high, and packed so close that a space of only 6 feet long and 16 inches wide was allotted to each slave. Here they remained while the human cargo was being collected (3 to 6 months) and during the passage across the Atlantic (6 to 10 weeks). In a tropical climate and under these conditions the mortality was frightful.

traffic, the profits were so enormous as to encourage the growth of a vast illicit business. Finally, in December 1803, South Carolina, influenced no doubt by the great gains to be secured, repealed all prohibitory laws and threw open her ports to the slave trade. Charleston became the most important slave market in the United States, and grew rapidly in wealth and importance ; in size it was the fourth largest city and seemed destined for a brilliant future. New England traders carried on a large share of the traffic, and slave-ships were fitted out in Boston and New York ; the voyages were usually made under the flag of a foreign nation. From 1804 to 1807 inclusive, 202 cargoes of Negro slaves were taken into Charleston ; of these, 8488 were sold for account of persons living in Rhode Island, Massachusetts, and Connecticut. On January 1, 1808, the constitutional restriction upon Federal interference would expire, and on March 2, 1807, Congress by law prohibited the importation of slaves after that date. The act was disregarded, however, as the punishment was insufficient — illegally imported slaves if captured were sold for the benefit of the State into which they were being brought — and a considerable illicit trade continued. In 1820, however, the traffic was made piracy, the penalty for which was death.

The restriction of the slave trade, together with the growing demand for slave labor, forced up the price of slaves, which by 1815 was \$250 a head. This demand was met by the sale of slaves from the exhausted tobacco plantations of the border States ; they were sent to the cotton regions by the tens of thousands. As the price of slaves increased considerable numbers were also smuggled in from the West Indies or through Mexico.

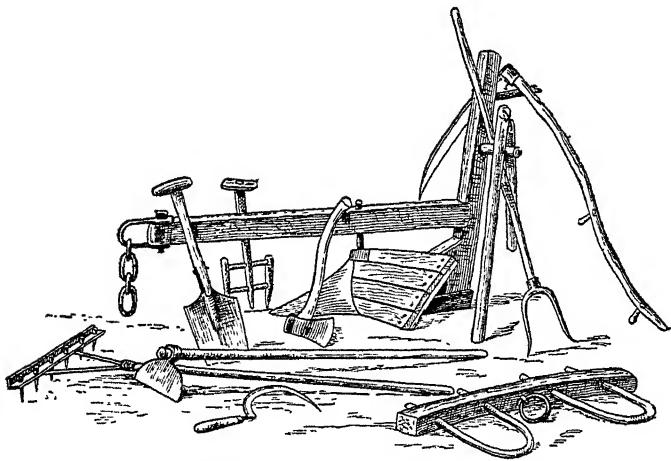
Agriculture in the South.—The agricultural methods employed in this period were those which had come down from colonial days and were a wasteful kind of extensive agriculture. The land was cleared for cotton, as it had been for tobacco and corn, by girdling the trees and then burning them as they decayed and fell. Before the fields were ready for cotton a few crops of Indian corn or wheat would often be gathered. The ground was prepared and cultivated in a very primitive fashion, but few agricultural implements being used and those only of the rudest and strongest kind, such as even the most careless slave could not break. Fertilizers were but rarely used, not even the cotton seeds being returned to the soil, while rotation of crops was unknown.

Although cotton is said to be the least exhaustive to the soil of the great staple crops of America, such methods rapidly wore out the land. "Agriculture in the South," said John Taylor of Caroline, "does not consist so much in cultivating land as in killing it." The land was used until exhausted and then deserted for a fresh piece. Because of the ease of moving his slaves, which constituted the greater part of his capital, the planter was ever ready to move on. It is evident that such a one-crop system required unlimited quantities of land, and this fact explains the steady westward movement of cotton culture for the next fifty years. How far the use of slave labor was responsible for the wasteful character of agriculture in the cotton regions it is impossible to say, but the relation between the two was intimate and Southern agriculture showed no improvement until after the Civil War.

Agriculture in the North.— Little progress was made in agriculture until after the Revolution ; this event directly and indirectly brought about changes which materially affected American industry. Most of the effort of the farmers was still necessarily devoted to enlarging the cultivated area of their farms — clearing the ground and removing timber and stones. So long as no available market existed for surplus products, a suitable stimulus was lacking to secure improvement in existing methods. Nor was the mass of the farmers of that time especially enterprising or well educated. Strange as such a complaint sounds to us, foreign travelers in the United States in the last quarter of the eighteenth century are nearly unanimous in describing the idling and lounging of the people, which they seem to have considered a national vice.¹

After the Revolution, the greater political freedom of the individual and the removal of restrictions upon foreign trade, together with the increased demand for our products during the continental wars abroad, greatly stimulated the interest in agriculture. The formation of societies for the promotion of agriculture was also an important step, for they awakened inquiry and intellectual activity and paved the way for agricultural literature. Five such societies were organized between 1785 and 1794 at Charleston, Philadelphia, New York, Massachusetts, and Connecticut. In 1776 fewer than forty newspapers were published in the country, none of them agricultural ; but these societies published books, pamphlets, and papers, and thus prepared the way for the agricultural periodical and the newspaper, which began early in the nineteenth century. By their meetings and publications the agricultural societies also secured a diffusion of the knowledge which had been acquired in the separate colonies and made repeated trials of the same thing less necessary ; they also extended the use of improved implements and labor-saving machines.

¹ H. Adams, *History of the United States*, vol. I, p. 56.



FARMING TOOLS, 1790

This meager list represents practically all the agricultural implements used by American farmers at the end of the eighteenth century. Notice the clumsy plow, with wrought-iron share, wooden mold-board, and heavy beam and handles; the wooden rake and fork; the primitive scythe, sickle, and flail. Great manual strength was necessary to use these tools, and the work was most exhausting

Farm implements.— With the exception of plowing and harrowing, practically all farm operations at the end of the eighteenth century were performed by manual labor with the aid of very rude and relatively ineffective tools. In the first census only one manufactory of agricultural implements was mentioned, a small establishment in Massachusetts which made annually 1100 rakes, valued at \$1870; even as late as 1820 only a few small factories of plows, scythes, axes, shovels, hoes, etc., were enumerated. The plow at the time of the Revolution was of essentially the same form as that of the ancients, with wooden mold-board and clumsy frame. The first patent for a cast-iron plow in the United States was granted in 1797 to Charles Newbold of New Jersey, who, after spending, as he alleged, \$30,000 in trying to get it into use, abandoned the attempt, the farmers declaring that iron plows poisoned the soil and prevented the growth of crops.¹ The first really great improvement in the plow was the result

of studies made by Thomas Jefferson on the shape of the mold-board. The introduction of the cast-iron plow into general use, which was completed by 1825, marked an era in American agriculture and led directly to many other improvements.

Two other important agricultural machines which were introduced during this period were the grain-cradle for cutting the crop, the first patent for which was issued in 1803, and the fanning-mill for cleaning it after it was threshed, which soon superseded the old hand-fan. A beginning was also made in the application of chemistry to agriculture, but the development of a science of agriculture did not take place until after 1840.

Livestock.— In the Southern States there grew up a considerable stock-raising industry in Virginia and Kentucky, especially the raising of mules to supply the cotton plantations. Washington early became interested in the mule as an animal well adapted to the climate of the South and able to endure the hard usage accorded all animals by Negro slaves. Indeed, he may be said to have been the founder of the mule-raising industry in the United States. In the North several important developments in the livestock industry began soon after the Revolution. American breeders began the importation of English Shorthorns and Herefords for the purpose of improving the native stock, though these great breeds had only recently been definitely established in England. Some of these cattle came to be known as the "milk breed" and others as the "beef breed."

The breed of horses was also improved by the importation from England in 1788 of Messenger, the famous sire of American trotters. Since the trotting horse is one of the very few distinctive breeds of livestock which this country has developed, this event is noteworthy. It is supposed that the Conestoga horses, which later became famous as the freighters in western Pennsylvania, were developed during this period from some large Flemish horses which the Dutch had brought to New York. Oxen were still the principal

work animals on the farm, though because of their slowness and clumsiness they gave way to horses as soon as horse-drawn farm machinery was introduced. With the importation of the first Merinos in 1793 noteworthy efforts were made to improve the breed of sheep. Great numbers of the famous Spanish sheep were thrown on the European market as the result of the Napoleonic wars, and enterprising American farmers began importing them, so that by 1809 there were 5000 in the country.

Agricultural products.—The agriculture of the period under discussion was for the most part simply self-sufficing, though of some articles there was an exportable surplus. Of these tobacco was the most important until 1803, when it was passed by cotton, which thereafter constituted about one-third of our agricultural exports. In New England hay was the most important single crop. The production of grains and livestock was greatly increased by the rapid settlement of the Ohio Valley; the population of Kentucky, Tennessee, Ohio, Indiana, and Illinois increased in the decade ending with 1810 from about 300,000 to 935,800. Most of the increase in food-stuffs was, however, consumed at home by the growing population. The total production cannot be stated, but there was, in addition to tobacco and cotton, a considerable export of wheat and flour, rice, Indian corn and meal, beef, pork, tallow, hams, butter and cheese, lard, live cattle, and

VALUE OF AGRICULTURAL EXPORTS				
YEAR	Vegetable Products other than Tobacco and Cotton	Tobacco	Cotton	Animal Products
1802	\$12,790,000	\$6,220,000	\$5,250,000	. . . . .
1803	14,080,000	6,209,000	7,920,000	\$4,135,000
1804	12,250,000	6,000,000	7,650,000	4,300,000
1805	11,752,000	6,341,000	9,445,000	4,141,000
1806	11,850,000	6,572,000	8,332,000	3,274,000
1807.	14,432,000	5,476,000	14,232,000	3,086,000
1808.	2,550,000	26,000	2,221,000	968,000

horses. The value of the exports from 1802 on, when statistics were first collected, is shown in the preceding table. It should be remembered, however, that because of the Napoleonic wars abroad, the exports during these years were abnormally large ; during the embargo and the War of 1812 they declined greatly.

A characteristic of the early years of the century was the concentration of farming upon the cultivation of the more profitable crops and the elimination of many which had long been under experiment. In New England and the Middle States attempts were still being made to grow lucerne, vetches, rape, spelt, spurry, poppies, madder, woad, and similar crops, but the discussions initiated by the agricultural societies showed most of them to be unprofitable and their culture was now finally discontinued.

Causes of agricultural progress.—In addition to the condition already named, F. A. Walker mentions² three other causes which he thinks were responsible for our great progress and pre-eminence in agriculture since the colonial days. (1) The vast breadth of virgin lands, which required only the cultivation of the best soils. (2) The popular tenure of the land and excellent laws for the registration of titles and transfer of real property. (3) The fact that the agricultural class, unlike the body of cultivators in almost every country in Europe, had never constituted a peasantry, in any proper sense of that term. "The men who tilled the soil here were the same kind of men, precisely, as those who filled the professions or engaged in commercial or mechanical pursuits. . . This state of things made American to differ from European agriculture by a wide interval. There was then no other country in the world . . . where equal mental activity and alertness have been applied to the soil as to trade and industry. But even more than the total effect of the fortunate conditions which have been indicated, American agriculture in those days owed its really remarkable power to

² *The Making of the Nation*, p. 66.

a special, almost a technical quality of our people ; namely, mechanical insight and invention.”

SUGGESTIVE TOPICS AND QUESTIONS

1. To what extent had cotton been produced throughout the world before the introduction of the cotton gin ? [*Encyclopedia Britannica*, art. Cotton.]

2. Describe Whitney's cotton-gin, previous attempts, and his subsequent treatment. Do you think he was treated fairly ? [M. B. Hammond, *Cotton Industry*, 25-31 ; J. L. Bishop, *History of American Manufactures*, II, 101 ; H. Thompson, *The Age of Invention*, 41-48 ; Encyclopedias.]

3. Has any other product ever exerted such an effect on the development of any country as cotton on that of the United States ? [J. A. B. Scherer, *Cotton as a World Power*.]

4. “The invention of the gin was the most important invention in the United States ; it had most far-reaching consequences.” Prove this.

5. What progress had been made towards emancipation and abolition of slavery prior to 1793 ? [W. E. B. DuBois, *Suppression of African Slave-Trade*, chaps. 2-5 ; E. Ingle, *Southern Side-lights*, chap. 8.]

6. Where were most of the slaves to be found in 1790 ? How were they treated ? [As under question 5.]

7. Was the North interested in the maintenance of slavery, and if so in what way ?

8. What was the provision in the Constitution prohibiting Congress from suppressing the slave-trade prior to 1807 ? Why was it inserted ?

9. Describe the slave-trade as it existed before its prohibition by Congress in 1807. [DuBois, *Suppression of African Slave-Trade* ; J. R. Spears, *The American Slave Trade* ; J. B. McMaster, II, 15.]

10. Why did the population increase so much more rapidly in the free States than in the slave States ?

11. What were the economic and social characteristics of the North and the South at this time ? [H. Adams, *History of the United States*, II, chaps. 1, 2 ; McMaster, I, 17 ; II, 4-16.]

12. Give a picture of farming in New England at this time. [T. Dwight, *Travels in New England and New York ; Eighty Years' Progress*, 27.]

13. Make a list of the principal products of the United States during this period, and indicate where they were raised. Draw an outline map and write the products upon it in the appropriate sections of the United States.

14. What influence did the growth of agricultural societies have on

the development of agriculture ? [Eighth Census (1860), vol. Agriculture, xiii ; Rep. of U. S. Commissioner of Agriculture, 1872, 282.

15. Because of its effect on slavery in this country Professor Edward Channing stigmatized Whitney's cotton-gin as "a curse to the South, to the United States, and to humanity." [*History of the United States*, V, 121.] Discuss this statement.

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CHAPTER XI

INTRODUCTION OF MANUFACTURES

During the Revolution the problem of manufacturers in the United States was how to meet the new demands upon them ; after the war it was rather how to meet the competition of machine-made British goods. It became necessary for the government to establish an economic policy. The labor problem as yet was one of adequate production rather than of hours and wages.

Manufactures during the Revolution.—The course of industrial development was but little influenced by the events which immediately preceded and led up to the Revolution. The spirit of antagonism to the English colonial legislation and the desire to lessen our industrial dependence upon Great Britain had indeed somewhat curtailed the importation of luxuries two or three times before the outbreak of hostilities. With the closing of the port of Boston, the first Congress passed the only aggressive acts of that body — a resolution in 1774 calling upon the several colonies to cease importing British manufactures either directly from that country or from other places, and another in 1775 forbidding the exportation of American produce, except tobacco and rice, to Great Britain or her possessions. The Revolution itself had a more positive effect upon domestic manufactures than did non-importation agreements. During the Revolution the manufacture of various articles was greatly stimulated by the urgent demand for war supplies, by the interruption of foreign commerce, and by the high prices of a paper money régime. Especially was this true of the iron industry, of textiles, and of other articles of necessity.

The manufacture of steel, which had been suppressed by the act of 1750, made definite progress. Firearms had been

manufactured during the colonial period and these were increased, powder mills were established, and nails and other minor articles of iron and steel were produced in increasing quantities. Tools and implements also were produced in response to the demands of a rapidly growing population and settlement of new land. The manufacture of paper, glass, and pottery had already shown some development before the Revolution, but was extended and perfected during the period of hostilities. Upon textile manufactures the direct effect of the Revolution "was mainly to increase the production of wool and cotton, to popularize the use of domestic fabrics, especially in the South, and to hasten the transition of homespun manufactures into household industries, organized by merchant employers and small manufacturers who supplied a commercial market."¹ In general, the Revolution was a period of industrial expansion and of newly developing manufactures.

Upon the return of peace, the infant industries quickly languished, as they could not compete with the flood of cheap manufactures which were poured into the country by Great Britain. Political independence had been achieved, but industrially the people of the United States were as dependent upon Great Britain as they had been during the colonial period. They continued to import most of their manufactured commodities from England and to devote themselves as before to agriculture and commerce. English manufacturers at this time possessed a monopoly of the new machinery which was revolutionizing the textile industry, and by securing the prohibition of its exportation prevented the growth of manufacturing in the United States, as they had previously done by the Navigation Acts.

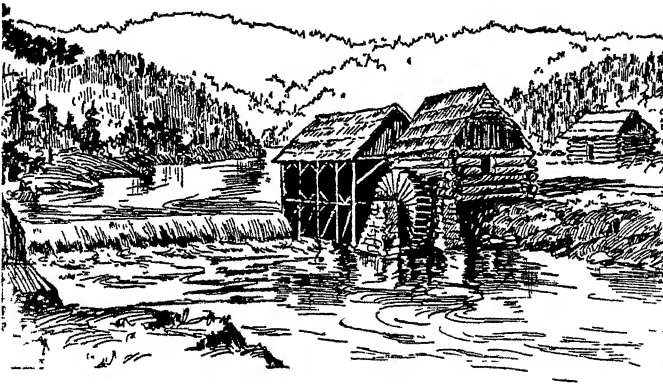
The industrial revolution in England.—Beginning with about 1760 a remarkable series of inventions, especially in textile manufacturing, had completely revolutionized English industry. These inventions consisted of the application

¹ V. S. Clark, *History of Manufactures in the United States*, I, 224.

of machinery to spinning and weaving. Before 1764 all yarn used in the manufacture of textiles of all kinds was spun in single threads upon the domestic spinning-wheel, while the weaving was done upon the hand loom. Clumsy as was this instrument, it could weave cloth faster than the yarn could be produced, but between 1764 and 1780 spinning machinery was perfected by Hargreaves, Arkwright, and Crompton, which made it possible to spin several thousand threads at once. The yarn could now be spun more rapidly than it could be woven, but in 1785 Cartwright invented a power loom, and the textile machinery was practically complete.

Up to this time textile mills had been located upon streams of water, from which power was obtained ; the application of the steam engine, which had already been used for draining mines and raising coal to the surface, as the motive power to drive the new machinery, made it possible to locate mills near the larger centers of population. The use of the steam engine in mining also stimulated the iron industry, which could now obtain its supplies of fuel more cheaply.

England and the exportation of machinery.—Through the possession of these machines, England controlled the manufacture of cotton and woolen goods, for without them no country could hope to compete successfully with her. Parliament jealously guarded this monopoly and passed stringent laws prohibiting the exportation of machines, plans, or models. In 1774 the exportation of any tools used in cotton or linen manufacture was made punishable by a fine of £200 ; this statute was extended in 1781 to woolen and silk manufactures, and imprisonment for twelve months was added to the money penalty. In the following year the exportation of machinery used in printing cotton goods was forbidden under a fine of £500 ; in 1785 this prohibition was also made to apply to tools used in the iron and steel industry. Inducing English operatives to emigrate was also severely punished. By these means, which were simply the application of mercantilist principles, Parliament hoped to secure to England the entire gain from the newly invented



FIRST MILL IN OHIO

This was the Wolf Creek Mill, built in 1789, about a mile above the junction of the Ohio with the Muskingum River. Because of the scarcity of labor, grist-mills and saw-mills were a prime necessity in pioneer settlements and were early erected.

machinery and to make her the manufacturing nation of the world.

The introduction of machinery into the United States and attempts at manufacturing.—As a result of these obstacles the American manufacturers were compelled to smuggle or to invent the new machinery, and it is a matter of record that both methods were practiced until most of the secrets of the English inventors were duplicated in the United States. As early as 1775 a spinning jenny after the Hargreaves type was operated in Philadelphia, and in 1786 Robert and Alexander Barr, two Scotch immigrants, were granted \$1000 by Massachusetts to enable them to construct machines for carding, roping, and spinning wool and cotton. These machines were probably the first in the country based upon the Arkwright models. The first cotton factory in the United States was erected at Beverly, Massachusetts in 1787, but it was a crude affair. It was followed soon after by others in Rhode Island, New York, and Pennsylvania. The power for all of these was probably furnished by horses. Several attempts to introduce manufactures were also made in the South and the West.

American inventors were likewise busy : in 1783 Oliver Evans greatly improved the grain-mills and a few years later invented the first double acting, high-pressure steam engine on record; Rumsey, Fitch, Perkins, and others added to the list of purely American inventions. On the whole, however, manufactures languished down to 1789 on account of the foreign competition and the inefficiency of the government at home. Indeed, the inability of Congress to provide properly, under the Articles of Confederation, for the regulation of our foreign commerce, and the irritating commercial legislation of the States, led to the calling of the Annapolis convention in 1787 and to the adoption of the Constitution two years later.

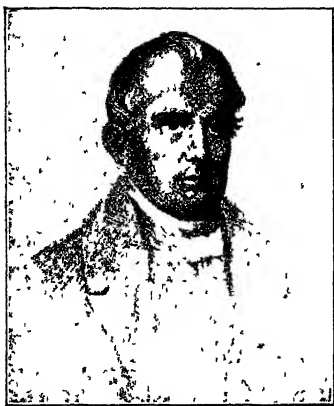
The Constitution and the beginning of protection.—

The year 1789 does not indicate any such break in the economic life of the people as it does in their political life. With the establishment of a more centralized government, however, an effort was made on behalf of the distressed "infant manufactures" of the time to obtain some protection from foreign competition.

The second act passed by Congress under the new Constitution, on July 4, 1789, opened with the preamble : "Whereas it is necessary for the support of the government, for the discharge of the debts of the United States, and for the encouragement and protection of manufactures, that duties be laid on goods, wares, and merchandise imported ; be it enacted," etc. While it seems clear that some measure of protection was intended by this act, the main purpose was revenue and the rates were very moderate, the average ad valorem duty being only 8 per cent and the highest 15 per cent, which is the lowest scale of duties ever imposed by Congress in a general act. On the other hand, it must be remembered that the great distance and the high freight rates afforded considerable additional protection. In addition to this and other tariff acts passed during the years 1789-1793, a tonnage act on foreign vessels and a discriminating duty on all goods not imported in American vessels gave

further protection, but this time to American shipping rather than to manufactures.

The birth of the factory system.—Several attempts were made in different places to introduce spinning by power, but the first complete cotton machinery was set up at Pawtucket, Rhode Island, in 1789, by Samuel Slater, called by President Jackson the “father of American manufactures.” Because of the stringent legislation against the exportation of machinery from England, Slater was compelled to make from memory all the machinery used in this factory. It was also necessary for him to train his workmen before he could operate the machinery, and for this purpose he set up a training school. Several writers of this period speak of the great progress that was being made in manufacturing. Brissot de Warville says, writing of his travels in the United States in 1788: “It is impossible to enumerate all the articles to which they have turned their attention; almost one-half of which were unknown before the war. . . The spinning machines of Arkwright are



SAMUEL SLATER

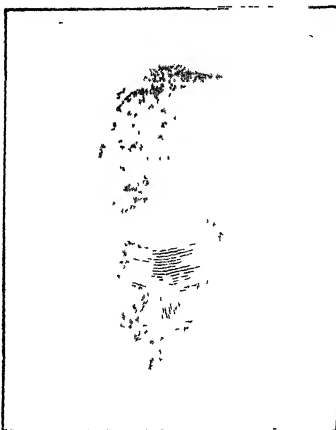
Slater learned the business of cotton spinning as an apprentice in Arkwright's firm, but having heard of the bounties offered in the United States for the introduction of English machinery, he emigrated to New York in 1789. As the exportation from England of all machinery, models, or plans was forbidden, he was compelled to memorize all the mechanical details. Upon his arrival in the United States he went to Pawtucket, R. I., where in 1789 he succeeded in building a mill and equipping it with the new textile machinery, constructed entirely from memory. The cotton manufacture of the United States dates from that time.

well known here and are made in this country.”

In his famous Report on Manufactures, 1791, Alexander Hamilton described some seventeen industries which had already reached a considerable development, involving the

collection of raw materials from various localities for the purpose of manufacturing, the division of labor, and the sale of the product in distant markets. The articles enumerated by him included manufactures of leather, iron, tools, and machinery, textile goods, potters' wares, spirits, paper, hats, oil, sugar, hardware, carriages, tobacco, and gunpowder. "Besides manufactories of these articles, which are carried on as regular trades and have attained to a considerable degree of maturity, there is a vast scene of household manufacturing, which contributes more largely to the supply of the community than could be imagined without having made it an object of particular inquiry. Great quantities of coarse cloths, etc., . . . are made in the household way, and, in many instances, to an extent not only sufficient for the supply of the families in which they are made, but for sale, and even, in some cases, for exportation. It is computed in a number of districts that two-thirds, three-fourths, and even four-fifths of all the clothing of the inhabitants are made by themselves." In 1789 Tench Coxe estimated the total value of American manufactures as "certainly greater than double the value of their exports in native commodities," or at about \$50,000,000.

Most of the production was still carried on in the household or in small shops, though certain mill and furnace industries had reached a point where they could supply most of



ALEXANDER HAMILTON

When Washington became president he appointed Hamilton secretary of the treasury. Although only about thirty-five years of age, he organized his department and soon put the finances of the government on a sound basis. He prepared numerous and valuable reports on the finances and other subjects, of which that on manufactures is one of the best known.

the needs of the country. This was especially true of those industries which were only a step or two removed from the raw materials from which they were made, or whose weight or bulk made their importation costly, such as steel and its products. By 1789 paper mills and powder mills commanded nearly the entire local market. Agricultural implements, vehicles, and furniture — heavy articles into the construction of which wood and iron entered largely — were supplied from domestic sources. Glass-making became established at several points. The so-called factories were, however, small and usually short-lived.

Importations of manufactures.— The movement in favor of manufacturing which showed itself in the passage of the act of 1789, received a serious setback in the next decade. A considerable import trade of textiles was developed from India and China and from Russia and Holland; importations from England were also largely increased. It was cheaper to buy imported goods than to manufacture them at home. On the other hand, there was an increasing demand abroad for our agricultural staples, and the outbreak of the Napoleonic wars diverted our labor and capital into this channel and that of the carrying-trade. Twenty years later Albert Gallatin, the Secretary of the Treasury, explained the slow growth of domestic manufactures in the United States during this period by the following reasons: the abundance of land, the high price of labor, the scarcity of capital, the greater profitableness of agriculture and commerce during the continental wars, and the continuance of old habits.

So slow was the growth of manufactures that in 1804, fifteen years after the establishment of the first cotton mill by Samuel Slater, there were only four cotton factories in the country. Indeed, Great Britain supplied us with such a large proportion of our manufactured goods that when in 1806 it was proposed to cease intercourse with her, such a plan was pronounced impossible. "China, glass, pottery, hardware, cutlery, edged tools, blankets, woolen cloths,

linen cotton prints, and a hundred other articles of daily use came from Great Britain in such quantity that the value of each year's imports amounted to \$35,000,000, and the duties paid on them to \$5,500,000, or nearly one-half of the entire receipts from customs." English and French outrages against our neutral shipping, however, required retaliation; the English Orders in Council and the Berlin and Milan decrees were soon followed by the Embargo Act, which prohibited American vessels from leaving the ports of the United States. This act may be regarded as closing the period of our colonial or formative life and ushering in the beginning of a national, organic industrial development.

The population in 1790.—The first census, taken in 1790, recorded a population of 3,927,214. This was evenly divided between North and South. Most of the people (about 69 per cent) were native whites chiefly of English descent, for there had been little immigration of recent years, but there was also an admixture of various elements (about 12 per cent); the Negroes made up the remaining 19 per cent of the total population. The majority of the people still lived along the Atlantic seaboard, although the movement to the West was already beginning. At this time Virginia was the most populous State, followed by Pennsylvania, North Carolina, Massachusetts, and New York. Manufactures had not yet developed sufficiently to bring about the great development of the industrial States which was to follow the introduction of the factory system. The largest city in the country, Philadelphia, had a population of 42,444, while New York, which ranked second, had only 33,131, followed by Boston (18,038), Charleston (16,339), and Baltimore (13,503); no other city had more than 8000, and only 3.3 per cent of the people lived in towns of 8000 or more. The rural communities were largely self-sufficing, supplying their wants by farming and by household industries. In the seaboard cities there was considerable commerce, but inadequate means of transportation prevented foreign wares from penetrating far inland.

The condition of labor.— As during the colonial period, the majority of the population was engaged in agriculture, and except in the South, where the labor on the large cotton plantations was performed by slaves, most of the agriculturists in the country were independent farmers. The wage-earners were chiefly artisans and were to be found almost entirely in the North ; it is this class that is referred to in the discussion of the condition of the laborer. The Revolution made but little difference in his lot : after, as before, the ordinary unskilled workman earned on the average about two shillings a day ; the hours of labor were from sunrise to sunset. While poverty was rare, the standard of living was low, and little beyond the bare necessities of life was obtained by the laborer in exchange for his wage. The westward migration and the development of the carrying-trade raised the pay of unskilled labor about the beginning of the nineteenth century to between 80 and 90 cents a day. The workers of this period had little intellectual stimulus ; the environment was local and there was little contact with the outside world.

The lack of labor organization.— As yet, little or nothing had been done to protect the rights of the laborer by legislation. He was paid at irregular intervals, and if not paid at all was unable to secure his dues by a lien on the product of his labor. The laws of debt were particularly harsh : for indebtedness in even the smallest sum a man could be thrown into prison and kept there until his debt and the prison charges were paid. The wage-earner without property did not possess the right to vote or to hold office, and consequently could not exert any political influence to force legislation in his behalf. But in spite of these conditions there was no labor movement.

There were isolated organizations of laborers in a few of the more skilled and centralized trades, as the printers in 1786 and the cordwainers in 1794 in New York and Philadelphia. Occasional strikes occurred and these were followed by trials for conspiracy, but not until 1827 was there

a general movement by all branches of labor. Some of the earlier organizations seem to have been formed for purely benevolent purposes, but all of them were confined to the skilled workers ; the unskilled laborers remained inarticulate and unorganized. Consequently, labor was unable to exert any influence upon legislation during this early period. The economic environment of a new country led, moreover, to extreme emphasis upon industrial individualism.

Summary.—The restrictions placed by Great Britain upon the economic development of the American colonies led almost inevitably to the Revolution and the severance of the political ties between the two countries. After the achievement of political independence the expectation of the colonists was still that they would remain an agricultural community and would carry on a mutually advantageous trade with English manufacturers, exporting raw materials in return for manufactured commodities. The realization of this ideal was prevented largely by England's own restrictive policy, which made trade on equal terms between the two countries impossible. A movement began for closer economic union between the States, which had hitherto stood jealously apart, and for the attainment of national economic independence.

Effective prosecution of this policy was barely beginning when the outbreak of the Napoleonic wars in Europe offered opportunities for profit in commerce and agriculture which caused the diversion of all energies into those channels. While engaged in this neutral trade the United States was forced, in defense of its rights upon the high seas, to take up arms again, and it chose to do so against Great Britain. By the conclusion of the War of 1812 the United States may be said to have attained practically complete commercial independence. The struggle for national industrial independence, which was inaugurated by the suspension of foreign trade during the embargo and the War of 1812, characterizes the next period rather than this one.

SUGGESTIVE TOPICS AND QUESTIONS

1. Did the form of government under the articles of Confederation have any effect on industrial development? How? [A. B. Hart, *History Told by Contemporaries*, III, chap. 6.]

2. What was the "industrial revolution" in England? [A. Toynbee, *Industrial Revolution in England*, E. P. Cheyney, *Introduction*, 199-239; L. Seager, *Introduction to Economics*, 12; S. J. Chapman, *The Lancashire Cotton Industry*, chaps. 2, 4.]

3. Why did England develop manufactures at this time rather than France or Holland or Germany? [W. C. Webster, *General History of Commerce*, 211-217; J. A. Hobson, *Evolution of Modern Capitalism*, 72-81.]

4. Was the prohibition of the exportation of machinery by England wise? Is it practiced today by any nations? Why? [C. D. Wright, *Industrial Evolution of the United States*, chap. 4; J. L. Bishop, *History of American Manufactures*, I, 376-378.]

5. What difficulties did Samuel Slater have in introducing new machinery into the United States, and how did he overcome them? [Wright, *Industrial Evolution*, 125; J. L. Bishop, I, 402-403.]

6. What was the Annapolis convention, and why was it called together? Did it accomplish anything? [A. C. McLaughlin, *The Confederation and the Constitution*, 179-182; A. B. Hart, *History Told by Contemporaries*, III, 185-187.]

7. Was protection intended in the tariff of 1789, or was it purely for revenue? Give reasons. [U. Rabbeno, 117-126; E. Stanwood, I, chap. 3; K. Coman, 138-144.]

8. What clause in the Constitution gives Congress the power to levy a protective tariff?

9. What was the condition of manufactures in the United States in 1791, according to Hamilton's report? [A. Hamilton's *Works*; F. W. Taussig, *State Papers and Speeches on the Tariff*, 79-103; *Annals of Congress*, 1791-1793, 971-1034; U. Rabbeno, 289-324; Bogart and Thompson, 252-268.]

10. What advantages did Hamilton think would result from their establishment in the United States? [Taussig, *State Papers*, 15-62; as above.]

11. What caused the so-called whiskey insurrection of 1793-5? [J. S. Bassett, *The Federalist System*, chap. 7; F. C. Howe, *Taxation in the United States*; J. B. McMaster, *History*, II, 189-203.]

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Part III—The Westward Movement (1808—1860)

CHAPTER XII

THE DOMESTICATION OF THE FACTORY SYSTEM

The first problem which arose after the War of 1812 was that of the governmental attitude toward manufactures. After a policy of protection had been decided upon, the real problems of domestic manufacturers presented themselves as to methods of production, of markets and prices, of organization, of wages and labor conditions, and of foreign competition. These were met with different degrees of success in different industries.

The American industrial revolution.—The year 1808~ may be taken as a convenient line of demarcation to distinguish the period of industrial dependence of the United States upon European countries from that of industrial self-sufficiency and diversified internal development. Colonial habits and occupations had predominated after the Revolution much as they did before it. In spite of various efforts at manufacturing, the country had remained largely agricultural and commercial. But with the passage of the Embargo Act, the Non-Intercourse Act, and finally the outbreak of the War of 1812, foreign trade was greatly hindered if not destroyed and the country thrown back upon its own resources. The domestic production of various commodities, which had previously been imported from England, was enormously stimulated by this period of restriction, and establishments for the manufacture of cotton and woolen

goods, iron, glass, hardware, and other articles sprang up with mushroom rapidity all over the country. As a result of this growth there developed a strong movement for protection, to which was joined later the demand for internal improvements and the rapid disposal of the public lands; a comprehensive policy was thus formulated for the development of the resources of the country. The realization of this program was achieved by improvements in manufactures and in the means of transportation and communication, and especially by the spread of cotton culture into the Southwest, which opened a profitable home market for our developing manufactures. It was an industrial revolution which changed the course of internal development in the United States, and while many years were necessary for it to work itself out, the beginnings may be conveniently marked by the year 1808.

The growth of manufactures.—The condition of manufactures at the beginning of the restrictive period may be seen from a report made by Gallatin, the Secretary of the Treasury, in 1809. According to this, the production of the following commodities was "adequate to the consumption of the United States": manufactures of wood, leather, soap, and tallow candles, spermaceti oil and candles, flaxseed oil, refined sugar, coarse earthenware, snuff, hair powder, chocolate, and mustard. In addition to these were the following, chiefly of recent development, but fairly firmly established and supplying a considerable part of the articles consumed: iron and its manufactures; manufactures of cotton, wool, flax, and hemp; hats; paper, printing types, printed books, and playing cards; spirituous and malt liquors; gunpowder; window glass; jewelry and clocks; manufactures of lead; straw bonnets and hats; wax candles. In the third group was contained a small list of manufactures in which some progress had been made, but which were clearly exotic and due only to the exigencies of the situation; such were chemical preparations, medicinal drugs, japanned ware, and some other related articles. The total value of all manufactures was estimated by Gallatin at \$120,000,000; but

Tench Coxe, in his analysis of the census of 1810, brought it up to \$198,613,474 by including a number of doubtful items like maple sugar, slate, fish, and other products not usually classified as manufactures.

In 1816 Alexander Dallas, then Secretary of the Treasury, made a report in which he described the industries which had grown up during the war ; of these the principal ones were textiles, manufactures of iron and hardware, and liquors.

The textile industries.— The greatest development took place in the textile industries, especially in New England, where the capital previously invested in shipping and rendered idle by the embargo and the war was now diverted into manufacturing. In 1804 there were but four cotton factories in the country ; five years later there were fifteen with 8000 spindles ; by 1810 the number of spindles had increased to 87,000, and by 1815 to 130,000. The consumption of raw cotton by domestic manufacturers shows the same expansion. The figures were as follows : in 1800, 500 bales ; 1805, 1000 bales ; 1810, 10,000 bales ; 1815, 90,000 bales. In this last year the capital invested in the combined cotton and woolen industries amounted to about \$50,000,000. A still further impetus was given to this industry by the introduction of the power loom in 1814 by Francis C. Lowell. He for the first time brought the various processes of spinning and weaving under one roof, in his factory at Waltham, Massachusetts, which has therefore been called "the first complete factory in the world." While many of the textile mills had improved machinery, most of these earlier factories were poorly constructed and equipped, and turned out only the coarser grades of products. The factory system spread rapidly, however, and factory towns sprang up on the streams of New England and in the Middle States. Lowell, Lawrence, Holyoke, Fall River, Cohoes, and Paterson are examples.

The return of peace.— Upon the conclusion of peace it was expected that things would return to much the same

status as before. Importations of foreign commodities grew greatly : in 1814 they were but \$13,000,000 and in 1816, \$147,000,000. The pent-up goods of English manufacturers were fairly poured into this country, where they were sold at low prices and on long credit. American merchants and consumers welcomed this stream of European luxuries and foreign wares, but to the manufacturers these enormous importations meant disaster if not ruin. At first, however, agriculture and commerce found such large foreign demand for their products that the complaint of the manufacturer was unheard amid the general rejoicing. The demand for American cotton by English cotton mills was insatiable and drove the price to new heights. Short crops in Europe created a demand for our agricultural foodstuffs, while the increased imports and exports furnished remunerative business for American shipping.

The true state of affairs was concealed by the high prices resulting from a disordered currency, but in 1818 the currency bubble was pricked and prices fell rapidly to a normal level. Meantime the permanent position in foreign markets of both agriculture and shipping was made less secure ; the English corn law of 1815 raised the duty and virtually excluded American grain from that market, while our commerce was prevented from expanding by the commercial restrictions imposed upon it by England, France, Holland, and other European countries. As the foreign market for agricultural commodities was cut off there grew up a demand for the development of a home market ; it was urged that we must be more self-contained. At the same time the struggling manufacturers were demanding protection against foreign importations.

Spread of the factory system.—The factory system of manufacture may be said to have obtained its first foothold in the United States during the restrictive period after the embargo. By the factory system is meant the concentration of all the processes of manufacture in a factory, involving their withdrawal from the household and shop where they

had previously been carried on ; it involves also the use of non-human power and the organization of the workers under skilled management, for stipulated wages and fixed hours, with production for the general market and not upon order. The period was distinctly one of "industrial transition" ; the use of machinery, which characterizes the modern system of manufactures, spread gradually. After the introduction of the power loom the manufacture of cotton and woolen goods began to pass from the household to the mill ; but the domestic and neighborhood methods of production continued to predominate, even in these industries, down to about 1830.

The culmination of the small industry.— New industries soon developed, machinery was employed more and more, and American manufacturers were prompt to adopt new industrial methods. There was a wide diffusion of petty manufacturing and mechanical establishments in every settled part of the country and a rapid increase in the total number of such enterprises. The census of 1840 showed probably the greatest development of small manufacturing industries which the country has ever seen. Each new community set up its own workshops and mills and even small manufacturing establishments. Since they were small and required little capital, it was easy for an enterprising man to start his own business and to supply the local market. The tendency to diffusion of manufacturing establishments as the population spread out over a wider territory was not as yet counteracted by the movement towards concentration, which followed the improvement of transportation facilities. After this period concentration and combination reduced the number of establishments, not only relatively to the population, but in some industries, as cotton and steel, even absolutely.

Economic independence.— But not merely was the period one of industrial development ; the nation was rapidly becoming economically independent and was almost self-sufficing. In 1834 the total value of all commodities manufactured annually in the United States was calculated at \$325,000,000, while that of imported goods — with the ex-

ception of tea, coffee, wines, and spices, which the United States did not produce — was less than \$50,000,000. At the same time the proportion of the population engaged in manufactures was steadily growing. In 1787 Tench Coxe had estimated that less than one-eighth of the population was engaged in manufactures, fisheries, navigation, and trade ; the census of 1820 returned 13.7 per cent of the working population as engaged in manufacturing and the mechanic arts ; in 1840 the percentage was 17.1. It is impossible to give any complete statement of the growth of manufactures during this period, as no adequate statistics were collected until 1850.

The following table shows the important facts for the years 1850 and 1860 :

GROWTH OF MANUFACTURES (including lumber and fisheries)					
YEAR	Number of Establishments	Number of Employees	Capital	Cost of Raw Materials	Value of Products
1850	123,025	957,059	\$533,245,000	\$555,124,000	\$1,019,107,000
1860	140,433	1,311,246	1,009,856,000	1,031,605,000	1,885,862,000

Products of small shops and establishments producing less than \$500 each yearly were not included ; but this domestic or hand industry probably amounted to \$100,000,000 more. Six-sevenths of the manufactures in 1850 were produced in fifteen States, chiefly in New England, which from the beginning had taken first rank as the seat of the manufacturing industries. The industries were generally diffused throughout the whole country, though even at this early date there was some localization : bonnets and straw goods, boots and shoes, and cottons were concentrated largely in Massachusetts ; hardware and rubber goods in Connecticut ; coal and iron in Pennsylvania ; calicoes in Rhode Island ; turpentine in North Carolina ; lard in Ohio ; and lead in Wisconsin. The largest single manufacturing industry — flour and meal — was closely allied to agriculture ; indeed, many industries

were but one or two degrees removed from the extractive industries. Flour and meal was the only industry which produced more than \$100,000,000 annually ; three others — boots and shoes, cottons, and lumber — produced more than \$50,000,000 each ; while clothing, machinery, leather, and woolens amounted to between \$25,000,000 and \$50,000,000.

The patent system.— Foremost among the causes of our industrial growth must be mentioned the genius of the people as shown in the patent system of the United States, under which the number of inventions patented had steadily increased from 306 in the decade ending in 1800 to 5942 in the decade ending in 1850, and to the then enormous number of 23,140 in the following ten years. In 1849, for the first time, the number of patents issued in a single year passed the one thousand mark, and only three times afterwards fell below that number. The annual number steadily increased until in 1860 it reached 4819.

Provision was first made by Congress in 1790 for giving to inventors the exclusive right to their discoveries. The term for which a patent was valid was fourteen years, and after 1836 an extension of several years was permitted in certain cases; in 1870 the original term was extended to seventeen years. This term is longer than that granted by the patent law of any other country. Every patent contains a grant to the patentee of the exclusive right to make, use, and vend the invention or discovery throughout the United States, and is granted on filing a claim and specifications and paying certain small fees. Patents are also granted for designs and trademarks as well as for machines.

Directions of inventive activity.— Most of the inventions for which patents were issued during this period consisted of labor-saving devices, the application of machinery to industrial processes, and new processes which simplified methods and reduced cost. Periods of depression, such as that following the panic of 1837, have generally resulted in a stimulation of inventive genius and a large increase in the number of patents. But the inventions of this period were not

merely of new machinery ; they were largely of a utilitarian character and included many of the improvements which have raised the general standard of comfort in this country. "They related to improvements in looms for producing figured fabrics ; to air-heating stoves, cooking stoves, musical instruments, firearms, sewing machines, printing presses, boot and shoe machinery, rubber goods, floor cloths, and thousands of other inventions tending to raise and improve the standard of living of the people."

The following extract from an inquiry made by the House of Commons in 1841 gives an English view of Yankee inventiveness : "I should say that the greatest portion of new inventions lately introduced in this country have come from abroad. . . I apprehend that a majority of the really new inventions, that is, of new ideas altogether in the carrying out of a certain process by machinery, or in a new mode, have originated abroad, especially in America."

The magnetic telegraph, invented in 1835, was first practically applied in 1844, and in 1846 the sewing machine was invented — two of the most important inventions of the half century. The manufacture of American edge tools began ; the invention of planing machines revolutionized woodworking ; in 1842 the Nasmyth steam hammer was invented, and in 1847 the rotary printing press. Piece by piece, in response to industrial needs, the mechanical appliances were being perfected which made possible the enormous production of the completed factory system and its operation under skilled and centralized direction.

Other factors of industrial progress.—Other factors which aided in the industrial development of this period were the growth of population, the increase in immigration, the extension of railways, the abrogation of the English corn laws, the discovery of gold in California, and the taking up of Western lands. The mere growth in numbers led to a considerable expansion in manufacturing, by adding to the number of workers and by creating a vastly increased demand for the products of American manufactures. Not only

was the West built up and its resources made productive, but the population in the Eastern manufacturing cities increased rapidly. While the total population of the country increased from 7,239,891 in 1810 to 31,443,321 in 1860, the number of cities of 8000 inhabitants and above rose from 10 to 141, and the urban population from 4.9 per cent to 12.5 per cent of the whole. Such a growth in numbers alone would have greatly influenced our industrial growth, but at the same time there was going on a territorial expansion and development of the Western territory that added greatly to the wealth of the country. The repeal of the English corn laws in 1846, by opening a profitable market to the American farmer, made him a better purchaser of manufactured goods.

General prosperity.— There is general agreement among all writers as to the great industrial advancement made in the United States during this period ; after the depression following the panic of 1837 it was a time of solid prosperity and steady, continuous progress. Sumner calls this period "the golden age." During the two decades from 1840 to 1860 the wealth of the people of the country increased 126 per cent, and with it the general well-being of the people, so that comfort was widespread and pauperism almost unknown. The wealth of the country was as yet very equally distributed ; if the poor were few, the number of the very rich was still smaller. Near the end of this period, Sir Morton Peto wrote of this point : "On their return from the United States travelers are not infrequently asked what feature struck them most favorably in their journey through the country. Looking to the territory, I should certainly answer to such a question, its wide expanse and its abundant resources ; but looking to the people, I should say, *the absence of pauperism*. Nothing is more striking to a European than the universal appearance of respectability of all classes in America. You see no rags, you meet no beggars." And Clark¹ adds similar testimony : "Probably in the United States more people relatively to the whole population than

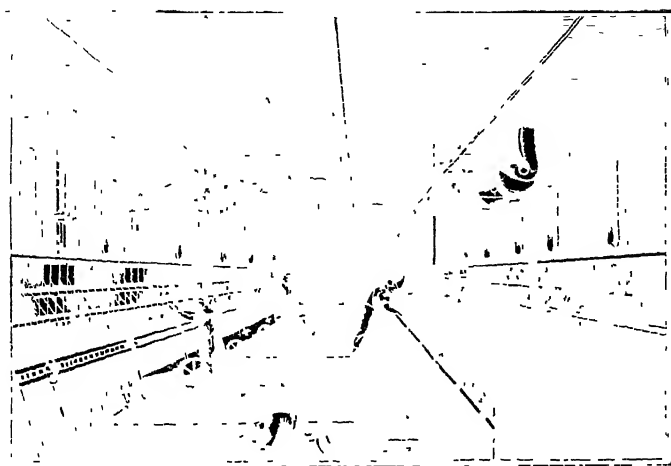
¹ *History of Manufactures in the United States*, I, 436.

in any other part of the world lived in frame houses, with cabinet furniture, stoves, carpets, china, glassware, clocks, and watches ; rode in carriages ; and performed their ordinary labors with the facilities of improved machinery."

The prosperity of this period was interrupted by the two panics of 1837 and 1857. The former was occasioned by over-investment of fixed capital in internal improvements, by land speculation, and by bad banking. The latter was due to speculation, over-expansion of bank credit, and too rapid investment in factories and mills, with consequent increased output of goods. But the country quickly recovered from the resulting depression, and the census returns of 1860 showed no effects whatever from this cause.

Cotton manufactures.—A clearer idea of the development of manufactures during this period may be obtained if there is traced in more detail the history of the two most important manufacturing industries in the United States at this time — cotton and iron. The cotton industry, and particularly the factory method of production, received a great impetus from the introduction of the power loom in 1814 ; before this only the spinning had been done by machinery, while the weaving was done at home on the hand loom. Immediately after the war, the immense importation of foreign goods seriously embarrassed the cotton manufacturers, but, partly as a result of protection granted by successive acts from 1816 on, and partly from other causes, the industry became profitable again. By 1824 cotton manufacturing was firmly established ; its further development was one of steady growth. In that year Webster stated : "In some sort of fabrics we are already exporting, and the products of our factories are at this moment in the South American markets."

The fall in the price of cotton cloth after factory weaving began was remarkable. "In 1815, when cotton cloth was still woven chiefly by hand — the family weaver finishing only four yards of cloth a day — the price of ordinary cloths for sheeting was forty cents a yard. In 1822 it had fallen to twenty-two cents, and in 1829 to four and one-half cents."



SPINNING ROOM IN SLATER'S MILL, 1830

Samuel Slater built his first mill in 1789 and equipped it with 72 spindles and three carding machines built on the Hargreaves and Arkwright models. This cut shows his mill in 1830 with the most improved spinning machinery. A mule spinner, carrying 300 spindles, could be operated by a single person, who could thus, with the aid of machinery, accomplish as much as 300 girls spinning by hand a single thread at a time on the old-fashioned spinning wheel.

In 1860, when the factory manufacture had completely abolished the old-time system, and when the power loom was in full operation, the price was reduced to two cents a yard as the result of machine methods. That this change of price was caused chiefly by the use of machinery, and not so much by a fall in the price of raw cotton, is evident from a comparison of the prices of cotton and of cloth. At the same time the cheaper article was one of good quality.

From the beginning, the cotton industry led all other manufactures in the amount of capital invested, the number of persons employed, and the value of the product. In 1830 the United States was second only to England in the amount of cotton consumed, and exceeded by England and France alone in the number of spindles. The industry was early localized in the New England States, especially Massachusetts; three-fourths of all the cotton goods produced in 1840

THE DOMESTICATION OF THE FACTORY SYSTEM 185

were turned out by New England mills. In spite of the great improvements in this branch, however, the cotton factories were but crude affairs compared with those of today ; according to Bishop not one in a hundred factories in the United States was provided with steam, while in England three-fourths of all the factories used steam as a motive power. By 1850 the industry had grown so in New England that the ratio of spindles to the population was slightly greater than in Great Britain ; to each 1000 of the population it was respectively 1008 and 1003. And during the next decade the number of spindles increased twice as fast as the population. By 1860 cotton manufacture had reached a high stage of development. Six-sevenths of the cotton goods used in this country were made here, only the finer grades being imported to the amount of about \$25,000,000 annually. There was already an exportation of cottons to the Orient, amounting to six or seven million dollars' worth yearly, and the outlook for a large expansion of trade seemed promising.

The progress of cotton manufactures is shown statistically in the following table :

COTTON MANUFACTURES, 1805-1860						
Year	Number of establishments	Capital	Number of employees	Number of spindles in factories	Raw Cotton consumed (pounds)	Value of manufactured product
1805	4	.....	...	4,500	11,000,000	.....
1815	.	\$30,000,000	50,000	130,000	27,000,000	\$14,300,000
1831	795	40,614,984*	62,157*	1,246,503	77,757,316	26,000,000
1840	1240	51,102,259	72,119	2,284,000	126,000,000	46,350,453
1850	1074	76,032,578	94,956	3,634,000	...	65,501,687
1860	1091	98,585,000	120,000	5,235,727	422,704,975	115,681,774

* For 1830.

The production of iron.—The course of events in the production of iron was so similar to that already described in regard to textile manufactures that it need not be referred to at length. During the period from 1808 to 1815 importations were cut off and a great increase in the production and

manufacture of iron took place. After the conclusion of peace successive tariff measures granted considerable protection to the iron industry, and by 1824 the pig iron product probably exceeded 100,000 tons annually. As long as pig iron was smelted with charcoal the United States, with its inexhaustible forests at the water's edge, had a great advantage, and during the colonial days had exported considerable pig iron to England. But the use of bituminous coal, the introduction in 1834 of the hot-air blast, and improved machinery, had reduced the cost in England below the expense of producing charcoal iron in this country. As the forests were cut down and wood became scarcer the cost of production kept increasing. So long as charcoal was used the iron furnaces were necessarily small affairs and produced only two to four tons a day. About 1840 the smelting of iron in this country was revolutionized by the substitution of anthracite coal for charcoal.

The use of anthracite coal.—The use of anthracite had long been known : as early as 1769 an ingenious blacksmith in the Wyoming valley is reported to have used it locally, and some years later several "ark" loads were floated down the Schuylkill to Philadelphia. The difficulties of transportation, however, prevented its general use. Gradually its possibilities became known; in 1825 the first successful attempt was made to generate steam with anthracite coal, and in 1837 the first furnace for smelting iron with anthracite was built. The real development took place after 1840. But even in the decade 1830-1840 the improvement in the means of communication by the building of railroads made the deposits available, and at the same time created a demand for iron.

After the introduction of anthracite as fuel other improvements began to be made : the necessity of improving the blast soon led to the application of steam power instead of water power to the blowing of American furnaces ; the combustible gases emitted from the furnaces were also used to heat the blast. About 1850 the use of coke began in the United

States, and a little later uncoked bituminous coal was used. These fuels did not assume much importance, however, until after 1860, and did not surpass anthracite as fuel until 1875.

Manufactures of iron.— The use of anthracite stimulated not only the production of pig iron, but also iron manufactures. Rolled iron, which had previously been imported, was produced in this country after 1844, when anthracite began to be used in puddling and other processes, and by 1856 its production had reached nearly 500,000 tons a year. Up to 1844 there were practically no facilities for manufacturing the iron rails needed for the 4185 miles of railroad in the United States, and until the tariff act of 1842 they were imported from England free of duty. Beginning with about 1844, however, iron rails were made in this country, and with the exception of a temporary setback in 1857 showed substantial progress up to 1860, when 205,000 tons were produced.

It is clear from these figures that the iron industry of the country was only in its infancy and that the inexhaustible mineral resources of the country were as yet practically undeveloped. Nevertheless, in 1860, the total iron production of the country exceeded 1,000,000 tons. Even more important was the manufacture of machinery, which was turned out in this same year to a value of more than \$50,000,000, in addition to \$17,000,000 of agricultural implements, \$11,000,000 of hardware, and \$3,000,000 of edged tools and axes.

Other manufacturing industries.— The important industries which were developed during this period, the value of whose products in 1860 exceeded \$15,000,000, were the following, given in order of importance : flour and meal, cotton goods, sawed lumber, iron and its manufactures, boots and shoes, men's clothing, leather and skins, woollen goods, miscellaneous machinery, sugar refining, provisions, printing and publishing, carriages, distilled liquors, furniture and cabinet wares, tobacco and snuff, malt liquors, paper, soap and candles, oil, agricultural implements, bread and crackers, hats

and caps, tin, copper and sheet iron, marble and stone work. A brief survey of the foregoing list shows that many of the most important so-called manufactures at this time were closely allied to the extractive industries ; the development of pure manufactures on a large scale did not occur until some time after the Civil War.

In this connection two industries are deserving of special mention, as they were peculiarly characterized by the application of machinery to their methods of production, with resulting revolutionary changes therein. These were the men's ready-made clothing and the boot and shoe industries ; their machine production was peculiarly an American development and was made possible by the invention of the sewing machine. In the manufacture of brass clocks there was an equally striking evidence of the ingenuity of American manufacturers ; the parts were stamped out by machinery, and for cheapness and excellence were without rivals. The distribution of miscellaneous manufactures was fairly general throughout the country, every State being represented ; New York, Pennsylvania, Massachusetts, and Ohio led in the value of output, in the order given.

Tariff from 1816 to 1824.— When the conclusion of peace in 1815 opened the ports of the United States to foreign importations it was generally felt that the industries which had grown up during the period of restriction were entitled to a fair measure of protection. President Madison, in submitting the treaty of peace with England, bespoke for the manufactures which had grown up during the war, "the prompt and constant guardianship of Congress"; he also urged, in his message of 1815, the duty of extending protection to "the enterprising citizens whose interests are now at stake." At the same time the struggling manufacturers were deluging Congress with petitions asking protection for themselves against foreign importations.

A general tariff act, avowedly protective, was accordingly passed April 27, 1816. The new textile industries, which were especially threatened by English competition, were

granted a duty of 25 per cent until 1819, and after that 20 per cent. Other goods, such as hats, cabinet wares, manufactures of wood, carriages, leather and its manufactures, paper, and sugar, were also given a measure of protection. This act has usually been considered as the beginning in the United States of the protective policy. While the earliest tariffs may have given protection, it was strictly incidental to revenue purposes, but here, for the first time, industrial and not fiscal needs determined the choice of articles and rates. There was, however, also the necessity of greater revenue for the payment of the heavy debt which had been contracted during the war. The debate on the tariff of 1816 was based on the broad question of the relative merits of free trade and protection ; since then the discussion has more and more become a contest over individual commodities or the scale of rates. The vote on the measure, too, was by no means sectional ; even the South this time voted for protection. After this measure successive acts extended the protective policy : the act of 1818 granted protection to the iron industry and extended the 25 per cent duty on cottons and woollens until 1826.

Tariff from 1824 to 1842.— In 1824 the list of protected goods was greatly expanded and made to include wool, iron, hemp, lead, and glass, in addition to textile manufactures ; duties were also raised on silk, linens, cutlery, and spices. In this act protection was given to agricultural and other extractive interests of the Western, Southwestern and Middle States, which were won over by the “home-market” argument.

This section was now the stronghold of the new movement ; the South had already changed her attitude and taken a strong stand against it, while New England was divided. Agitation for still higher protection, headed by the woollen manufacturers, led to the passage of the act of 1828, which may be said to represent the high-water mark of protective legislation before the Civil War. It was passed by the aid of New England, where the manufacturing now

outweighed the shipping interests, but led to bitter opposition in the South.

The "abominations" of the act of 1828 led to a reaction which found expression in the moderate policy of the tariff of 1832, practically restoring rates to where they had been in 1824. This soon gave way in turn to the so-called compromise tariff of 1833. The determined opposition of the South, culminating in the nullification program of South Carolina, required concessions from the extreme protectionists of the North. As finally passed, the act of 1833 provided for a gradual reduction of all duties exceeding 20 per cent in the tariff of 1832 to a general level of 20 per cent; by 1842 the reduction had actually taken place.

The tariff, 1842-1846.—The panic of 1837 and other causes had brought about a serious decline in the government revenues, and to meet this deficiency it was thought best to raise the tariff duties again. A tariff act was therefore passed in 1842 restoring duties to about the level of 1832. It was thus decidedly protective in character. Very high rates were placed upon those articles which it was desired to protect, as cotton bagging, window glass, cut nails, refined sugar, and especially iron, upon which the duties were as high as 77 per cent. At the same time some other administrative changes were made: specific duties were laid where possible, while cash duties, home valuation, and the examination of parties under oath made the act distasteful to importers.

When the Democrats came into power in 1845, they proceeded to reform the tariff along revenue lines. Robert J. Walker was appointed Secretary of the Treasury and drew up a tariff act upon free-trade principles. Articles were classified for the first time into several schedules, labeled A, B, C, etc., and the articles in group A were taxed 100 per cent, those in group B 40 per cent, and so on down to 5 per cent, while group I was admitted free. Luxuries were placed in the first group, and the controverted articles, for which the manufacturers demanded protection, like iron,

manufactures of metals, wool and woolens, leather, glass, paper, and wood, were placed in class C and taxed 30 per cent. While this has often been called a free-trade measure it was really only modified protection. On the administrative side all the duties were made *ad valorem*, which led to considerable undervaluation and evasion. The warehousing system, under which the government stores imported goods in a bonded warehouse without payment of duties for three years, was introduced at this time, and this feature has been permanently retained.

The tariff, 1846-1861.—The period from 1846 to 1861 was one of great industrial prosperity in the United States. As has been pointed out, the gold discoveries in California, the rapid building of railroads and opening up of the West, the increase in immigration, the famine in Ireland, the repeal of the British corn-laws, and other factors brought about a great revival of business and rise in prices. With this expansion of activity importations increased, and with them the government revenues, until it became necessary to lower the duties in order to reduce the redundant income. The average annual yield of the tariff of 1846 was \$46,000,000, while that of 1842 had been \$26,000,000. In 1857 a measure was passed with little party opposition which provided for a reduction of about 5 per cent from the tariff of 1846; at the same time the free list was enlarged.

Within a few months after the passage of this act a severe commercial and financial panic broke out, which greatly reduced the government revenues and resulted in a series of treasury deficits. Accordingly the Morrill tariff of 1861 restored duties to about the level of the tariff of 1846. There has been much discussion as to the degree of causal connection between the tariff measures of 1846 and 1857 and the early prosperity and later depression of this period, but it seems clear that other factors were much more important in bringing about these results than the tariff acts. There had been an enormous addition to the circulating medium of the country, in the form both of gold and of

bank-notes and credit ; railroad building was excessive, speculation in Western lands and in doubtful industrial enterprises was general, while large importations had created a heavy balance of foreign indebtedness against us. These forces alone would undoubtedly have brought about a reaction, which at most was only precipitated by tariff changes.

SUGGESTIVE TOPICS AND QUESTIONS

1. What are the chief characteristics of the factory system ; the differences between it and the domestic system ? [E. P. Cheyney, *Introduction*, 213 ; E. W. C. Taylor, *History of the Factory System*.]

2. Did the industrial revolution in the United States lead to such bad results as in England ? Why ? [*American State Papers*, Finance, II, 666-689 ; K. Coman, *Industrial History of the United States*, 180-185.]

3. Why did New England take the lead in manufacturing ? [W. B. Weedon, see Index ; K. Coman, 180.]

4. What were the conditions in New England textile factories in the thirties ? [C. D. Wright, *Some Ethical Phases of the Labor Problem*, 74 ; H. Martineau, *Society in America*.]

5. What objections may be urged against the factory system ? Are they conclusive ? [C. D. Wright, in Tenth Census (1880), II, 537 ; C. D. Wright, *Some Ethical Phases*, chap. 3.]

6. Describe the early experiments with the use of anthracite coal. [W. J. Nicolls, *Story of American Coals*, chap. 4.]

7. Do you regard the decrease in the number of small industrial establishments as a loss or a gain to the nation ?

8. Mention some of the great fortunes made as a result of patents.

9. Why are patents or public franchises granted to private individuals by society ?

10. Are most successful inventions made by accident or after long study ? [A. Smith, *Wealth of Nations*, book I, chap. I (p. 11 in Econ. Classics) ; J. S. Mill, *Principles of Political Economy*, book I, chap. 8, sect. 5 ; Sargent, *Public Men and Events*, II, 193.]

11. Describe some unique American inventions which are peculiar, so far as you know, to this country. [E. W. Bryn, *Progress of Invention*, chap. 19 ; K. Coman, 227.]

12. Why was the tariff of 1828 called the "tariff of abominations" ? [F. W. Taussig, *Tariff History*, 88 ; D. R. Dewey, *Financial History of the United States*, 176.]

13. Albert Gallatin in the Free Trade Memorial of 1832 said that a protective tariff involves a national loss. What did he mean ? Is it

true? [Taussig, *State Papers and Speeches on the Tariff*, 108-213; C. J. Bullock, *Introduction*, 355.]

14. Why did the South oppose protection? [W. Wilson, *Division and Reunion*, 39-61; Dewey, chap. 8, Taussig, *Tariff History*, 73.]

15. What was the nullification ordinance of South Carolina and its relation to the tariff? [W. MacDonald, *Select Documents*, 231-237, W. G. Sumner, *Jackson*, 281-291, C. Schurz, *Clay*, II, 1-22.]

16. What principles did Walker lay down in his Treasury report for 1845 to govern customs duties? [Taussig, *State Papers*, 214-215; *Executive Documents*, 29 Cong., 1 sess., II, No. 6.]

17. Do you think the prosperity of the period after 1846 was due to the Walker tariff? [U. Rabbeno, 184-199; E. Stanwood, II, 83-93; D. R. Dewey, 256-259.]

18. Why was a new tariff act passed in 1857? [Dewey, 262; Stanwood, II, 97-108.]

19. Do you think it would have been advantageous for the United States to have adopted a free trade revenue tariff after the Walker tariff?

20. What arguments in favor of protection were advanced by Henry C. Carey? [H. C. Carey, *Principles of Social Science*, I, chap. 4, sects. 1-3, 8, 10, 14, 15, 19, 20, 26-29.]

21. What was the deficit in home-grown wool required by our manufacturers, 1840-1860? From what places was it supplied? [Twelfth Census (1900), IX, 90.]

22. Describe the manufacture of wooden and of brass clocks in the United States. [Bishop, II, 97, 396, 427.]

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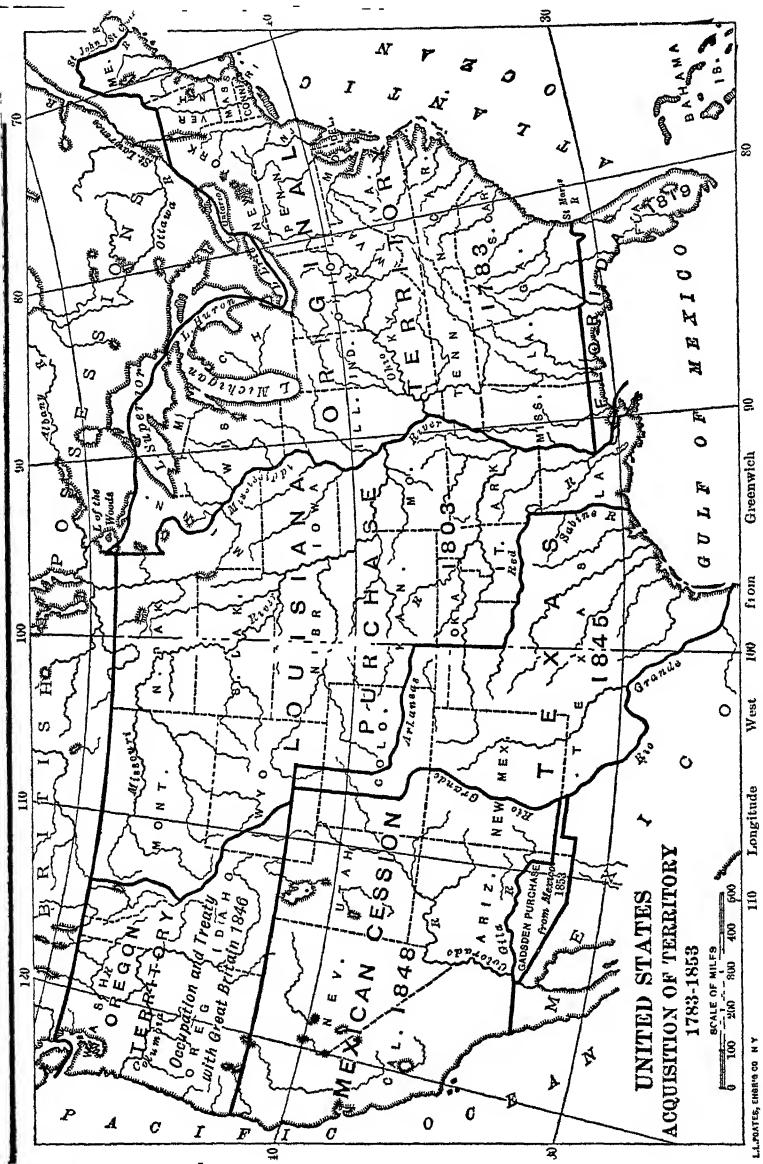
CHAPTER XIII

THE WESTWARD MOVEMENT

The pioneer settlers who moved west had several problems to meet in their new adventure: by what route, by what sort of conveyance, to what section should they go? Once arrived at their destination they faced new problems of adjustment, of production, of finding a market for their surplus products, and of obtaining for themselves the manufactured goods of more advanced sections.

Significance of the westward movement.—From the beginning of our history the general movement of the population has always been westward, but the expression “westward movement” has a peculiar significance during this period, for now began on a large scale the serious task of occupying and subduing the country west of the Alleghenies. Other peoples in their growth have had to meet and conquer rival nations. [With the exception of the Indians, who often obstructed or diverted, but never permanently hindered the westward expansion, the only serious obstacles at this time in the way of the Americans were the natural barriers and the inadequacy of the existing means of transportation. It was the quiet, resistless, onward march, not of an invading army, but of peaceful settlers. For three-quarters of a century this continued, giving character to American life and a sturdiness and energy which were lent only by contact with primitive conditions and large opportunities. The very nature of the people seems to have been changed by this great task of subduing a continent, gaining at once in initiative and vigor.

Beginning almost with the Revolution, and continuing with renewed energy after the embargo and the War of 1812, the people of the United States addressed themselves



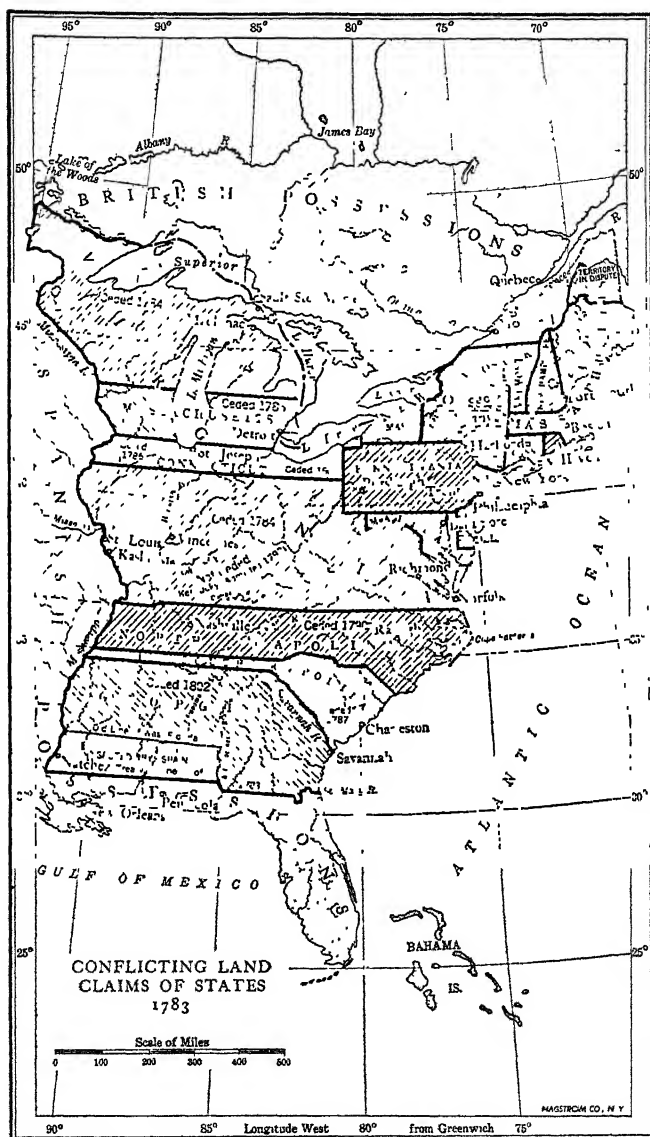
as a nation to the development of their internal resources. After 1808 capital and labor began to be diverted from commerce and shipping and invested in Western lands and Eastern manufactures ; attention was now directed to internal development rather than to foreign policy. Since then the great work of the American people has been that of opening up and developing their own resources, and has been surpassed in importance, if at all, only by the struggle for the preservation of the Union. This was the beginning of an economic revolution which has given color to and dominated our entire industrial and political history from that day almost to the end of the nineteenth century.

Early westward migration.—The successful ending of the French and Indian War, which gave to England the territory east of the Mississippi and removed the fear of French aggression, afforded the opportunity for a westward movement of the population, though this was opposed by the British government in the Royal Proclamation of 1763. It could not be restrained, however, and the earliest advance took place into what is now Kentucky and Tennessee. The territory between the Tennessee and the Ohio rivers was ceded to the English by the Indians, by the treaty of Fort Stanwix in 1768 and other treaties, and lay invitingly open to settlers from Pennsylvania, Maryland, Virginia, and North Carolina by way of the Ohio River and its tributaries or by the Cumberland Gap. The movement was a slow one, retarded by Indian resistance and, both before and after the Revolution, by English hostility, both of which had to be met and overcome, largely by the efforts of the settlers themselves. Politically these early settlements were of great importance in settling the dispute with Great Britain for possession of the Western crown lands. By 1790 there were about 200,000 persons in the territory west of the Appalachian Mountains ; ten years later, 387,183 ; and in 1810, 1,075,398. The distress which followed the War of the Revolution and the attendant economic chaos drove the people from the seaboard over the mountains in search of new fortunes.

This movement of settlers into the newly acquired domain of the United States brought to the front the problem of setting up a system of government and of putting the land into the possession of occupiers who would use it. The first was met by setting up the territorial form of government by a series of ordinances of which the Ordinance of 1787 was the most important. The problem of disposing of the land to settlers led to the development of a rather vacillating land policy.

Public lands and early land policy.— At the close of the Revolution the lands between the Alleghenies and the Mississippi River, which were ceded by England in the treaty of 1783, were claimed by seven of the original States. Their claims, based upon colonial grants, were confused and often conflicting, and led to dissensions, especially with the landless States. Chiefly because of the insistence of Maryland, the land-claiming States finally agreed to cede their rights to the Western lands to the central government, and by 1802 the United States, which did not own a single acre of land in 1783, was in possession of an immense public domain of 333,108 square miles. Since that time it has been increased by annexation and purchase, and at the same time reduced by sale and gift.

In the disposal of the public land two distinct policies have been pursued by the United States. According to the first, which continued from about 1784 to 1820, it was held that the lands should be used and sold for the sake of revenue and to pay off the public debt. Under the second, which has obtained from 1820 to the present time, the Western lands were to be disposed of — sold or given away — to settlers and others for the sake of developing the country. As a rapid disposal of the public lands and immediate revenue were desired at first, it was provided in 1785 that land should be sold only in large quantities; 640 acres was the minimum amount one person could purchase. Under this act a few large sales were made, all in the present State of Ohio, amounting by 1800 to 1,484,087 acres, or less than 100,000



acres a year. The effect was to concentrate the holdings in the hands of a few large speculators or proprietors rather than in the possession of actual settlers, and this policy was accordingly modified in 1800.

Sales on credit.— The act of May, 1800, and subsequent acts permitted the sale of land in minimum tracts of 160 and 320 acres, on credit, at the fixed price of \$2 an acre. Under the influence of the credit provision, by which only one-fourth of the purchase money had to be paid down, the rest falling due in three annual installments, large sales were made, amounting in the next twenty years to about 18,000,000 acres. Many of the purchasers were speculators and many were settlers who had assumed obligations beyond their ability to fulfill, especially during the hard times from 1808 to 1815. After that year the great rise in the price of cotton to 26 and 34 cents a pound led to still greater speculation in Southwestern lands, the sales amounting to more than 5,500,000 acres in the single year 1819. The fall in the price of cotton the following year and other causes led to another crash, and the arrears to the government for land sales grew to \$21,213,350.

Numerous relief acts had already been passed upon the demand of impoverished debtors, but in 1820 the matter was finally adjusted by allowing those indebted to the government to obtain the proportion of land already paid for by relinquishing the remainder to the United States. About 2,500,000 acres reverted to the government under these acts. Perhaps three-fourths of the settlers who moved west before 1820, however, had not purchased their lands at the public land offices, but had settled in regions like Kentucky or Tennessee, which had never come under the land system, or on land held under earlier titles, as in Ohio. These lands could generally be bought for less than the minimum price of the public lands.

Importance of the public lands.— It is almost impossible to exaggerate the influence which the vast Western expanse of cheap land has had upon the economic history of the

United States. In the later days of the Confederation and the early days of the Republic it bound together by economic interests the States at a time when they otherwise would have drifted apart. Later it afforded an outlet for a growing population, which, instead of becoming denser, spent its force in taking up new territory. The problem of over-population — that boggy of the early nineteenth century in England — had no meaning in a country where an increase of hands was the greatest need. Unemployment, the standard of living, and the rate of wages were all solved by a recourse to the open land of the West, while the problem of immigration was mainly that of inducing foreigners to come to our shores. This abundance of land greatly simplified economic and social problems and acted as a safety-valve in times of depression.

Disposal of the land for settlement.—The early policy of the government, of land sales for the sake of revenue, gradually gave way to the second, and what has proved to be the permanent, policy respecting the public lands. This is the system of land grants for actual settlement in small lots suitable for cultivation. By the act of April, 1820, sale for credit was abandoned and the price reduced to \$1.25 an acre, while the minimum tract to be sold to one individual was reduced to eighty acres. The earlier system had been denounced by Western men, who objected to the use of the public domain as a source of government revenue, to the high price of the land, and to the credit system. Representatives of the Eastern States, on the other hand, had resisted any change in these provisions, as they feared the reduction of land values in the East because of the competition of the abundant lands in the West, and claimed that a reduction of price would drain off the population from the seaboard and cause a rise of wages in the manufacturing States. Each view was seen to be exaggerated.

For the next ten years the sales of public land were very steady, averaging about 1,000,000 acres yearly. The introduction of the steamboat upon Western waters, the extension

of cotton culture through the Southwest, the greater demand for agricultural produce as a result of the growth of population, all led to a steady demand for land for actual cultivation and settlement. The possibility of using the public lands as an agency of social reform gradually dawned upon the workingmen, and they began to demand, in their papers and conventions, that speculation should stop and the public domain be opened to the people. Land reform became an important issue in the platforms of organized labor. During the years from 1825 to 1832 many schemes of a most questionable character were introduced in Congress for disposing of the lands by sale or gift, for reducing the price, or for handing over the public lands to the States for them to dispose of.

Speculation in Western lands.—The next few years saw an outburst of speculative activity which has scarcely been equaled since in the United States. This was largely caused by the great increase in land values, the inflated condition of the currency, and the loose banking methods then prevailing. Western lands had been steadily increasing in value for some years, and as credit and money became easier under the speculative fever of the time, they seemed a favorable object of investment to those who were seeking an easy and rapid increase of wealth. Paper villages were laid out, lands portant manufacturing industries in the United States at this original cost, and speculation was fanned to a fever heat.

The sales of public lands swelled rapidly, amounting to 3,856,278 acres for the year 1833, and to the enormous figure of 20,074,871 acres for 1836. The sales of 1834-36, 40,000,000 acres, exceeded all that had been sold before. Nor was the speculation confined to Western lands; as a result of the extension of cotton culture due to the increasing demand for, and the consequent advance in the price of, cotton — from a maximum of 13½ cents a pound in 1833 to 20 cents in 1835 — the value of Southern plantations and of city real estate rose enormously. The coal lands of Penn-

sylvania and the manufacturing cities of the East felt a similar impetus. Thus the assessed value of real estate in New York City rose from \$143,732,425 in 1835 to \$223,742,303 in 1836, and in Mobile from \$4,000,000 in 1834 to \$27,000,000 in 1837. After the panic of 1837 these values fell even more rapidly.

Pre-emption of the public lands.—The rapid peopling of the West and the settlement of the public domain made necessary a better method of disposing of the land to actual settlers than had prevailed. Under the previous system of sales many of the most desirable tracts were bought and held by speculators or for investment. As the incoming population pressed in, it tended in its haste to pass beyond the surveyed lands and to settle in the wilds before they had been opened to settlement. The public domain was theoretically not open to settlement until it had been surveyed and was offered for sale through land offices; as a matter of fact the pioneers did not wait for government surveys, but "squatted" on the land. For the benefit of those already upon the soil and of future residents the pre-emption system was gradually developed. "Pre-emption is a premium in favor of, and condition for, making permanent settlement and a home." "The essential conditions of pre-emption are actual entry upon, residence in a dwelling, and improvement and cultivation of a tract of land." It was not a free grant of land, but simply a privilege to the settler of purchasing at the established price the land upon which he had settled, without competition of any sort. The first general pre-emption act was passed in 1830 as a temporary measure and was continued each year until superseded by the permanent law of 1841. The policy of disposing of the public lands primarily for homes had now been definitely adopted. Except during the panic of 1857, the sales during this period were steady and kept pace with the settling of the West, averaging about three and one-half million acres a year.

Grants of land.—In addition to its use for purposes of settlement, the public domain of the United States has also

been employed to encourage internal improvements, for educational purposes, and in direct gifts to individuals and States. By the ordinance of 1785 it was provided that one thirty-sixth of the public lands should be reserved for the support of the common schools, and since 1848 one-eighteenth has been so reserved in all States entering the Union after that date. Beginning with 1841, the lands were recklessly alienated by Congress ; during the period 1841-60, 65,701,312 acres were granted to individuals, 105,131,877 acres were granted to States for purposes other than internal improvements, of which the largest single gift was that in 1849 of all the "swamp and overflowed lands" within the limits of any State ; and 29,820,337 acres were granted to States and corporations for internal improvements. Of a total of 269,406,415 acres disposed of during the period 1840 to 1860, only 68,752,889 acres were sold, the rest being generously — or improvidently — given away by Congress.

Movement of the population.— There was a rapid settlement of the Mississippi valley after the purchase of Louisiana, and between 1810 and 1820 that movement received a new stimulus. In 1810 about one million people were living in the Western States and territories, a number which more than doubled within the next ten years. So long as land was to be had, the rate of movement westward has always been a fluctuating one, being retarded or hastened by the economic condition of the people : in good times it has been slow ; in bad times, rapid. During the period of depression following the Revolution, the migration from the Atlantic seaboard was rapid. It declined during the good times of the Napoleonic wars, with the exception of a huge wave at the time of the Peace of Amiens, which sufficed to bring Ohio into the Union. The embargo and the War of 1812 again sent streams of settlers west in search of better conditions. This movement has been well described in Peck's *New Guide for Emigrants to the West*, published in Boston in 1837, in the following passage:

Generally, in all the Western settlements, three classes, like the waves of the ocean, have rolled one after the other. First comes the pioneer, who depends for the subsistence of his family chiefly upon the natural growth of vegetation, and the proceeds of hunting. His implements of agriculture are rude, chiefly of his own make, and his efforts directed mainly to a crop of corn and a "truck patch." . . . A log cabin, and occasionally a stable and corn-crib, and a field of a dozen acres, the timber girdled or "deadened," and fenced, are enough for his occupancy. . . . The pre-emption law enables him to dispose of his cabin and corn-field to the next class of emigrants; and, to employ his own figures, he . . . "clears out for the New Purchase" . . . to work the same process over.

The next class of emigrants purchase the lands, add field to field, clear out the roads, throw rough bridges over the streams, put up hewn log houses with glass windows and brick or stone chimneys, occasionally plant orchards, build mills, school-houses, court-houses, etc., and exhibit the picture and forms of plain, frugal, civilized life.

Another wave rolls on. The men of capital and enterprise come. The settler is ready to sell out and take advantage of the rise in property, push farther into the interior and become himself a man of capital and enterprise in turn. The small village rises to a spacious town or city; substantial edifices of brick, extensive fields, orchards, gardens, colleges, and churches are seen.

The settlement of the West.—The three types just mentioned represent three stages in the development of the West, and as many steps in the process of pioneering. The early pioneers who moved out to the frontier just after the Revolution did so under conditions very different from those in the later movement. Without improved means of transportation they were forced to make their way on foot, on horseback, or by wagon, over roads which were but slightly improved trails. The settlement of the West may fairly be regarded, as Callender suggests, as a great example of colonization, for the land journey from, say, Connecticut to Ohio was more difficult and expensive to make than the ocean journey from Europe to New England. Arrived at his destination, the pioneer was cut off from communication with his old home, and suffered all the inconveniences and hardships of settlement in a new country. With little capital, even in the form of adequate agricultural implements, with no markets—certainly no convenient ones—for the



MIGRATING FROM CONNECTICUT TO OHIO

Settlers migrating from New England or New York to the Ohio valley usually traveled by wagon as far as Pittsburgh, from which point they floated down the river to their destination. For protection against the Indians the emigrants usually went in large companies.

exchange of his surplus products, he was thrown back entirely upon his own resources. Under these conditions life was hard and progress was slow.

When the second generation pushed their way along the track thus marked out for them, they had the advantage of improved means of transportation — turnpikes and canals, and later still the railroad. The West was thus made at once more accessible for settlers and they were able more easily to reach markets, which, moreover, had now grown up and were ready to purchase their surplus products. So important were these factors that one observer called the railroad the "soul of Western civilization." The very facility of movement brought evils of its own and induced a migratory spirit among the people, which made them ever ready to move on.

The last stage in Western progress is reached when the

men of capital come. They are the permanent settlers and introduce permanent improvements: they build durable houses, establish manufactories, and develop the resources of the country. But by the time this stage in development has been reached the frontier has been pushed farther on, and the work of real pioneering is being done by other hands.

Results of the movement.—The population of the Northwestern States — Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa — increased from 50,240 in 1800 to 729,719 in 1820, and 2,967,840 in 1840. "We are great," said Calhoun in 1817, "and rapidly — I was about to say fearfully — growing." So great indeed had this westward migration become by 1817 that its effects were already apparent in the East, from which most of the settlers came. In New York the increase in population between 1810 and 1816 was only 3600, which was much less than the gain in the number of immigrants in the State. The West, on the other hand, developed rapidly; but there was no sudden growth of cities. The population simply spread out over a wider territory, which it brought under cultivation. Thus from 1820 to 1830, while the population increased 32.5 per cent, the settled area increased 24.4 per cent; between 1830 and 1840 the increase respectively was 32.5 per cent and 27.6 per cent. During this twenty-year period, therefore, although the population almost doubled, the density of the settled area increased by only about two persons to the square mile. Great as was this movement, the real significance lay not so much in the increase in population as in the opening up of the West. Before they could make any economic contribution to the rest of the country, however, the Western settlers must have access to a market. There must not only be improvements in the means of transportation and communication, but there must be a demand for their products. The first of these conditions was in large measure met by the invention of the steamboat; the second by the spread of cotton culture through the Southwest.

SUGGESTIVE TOPICS AND QUESTIONS

1. Is Bishop Berkeley's saying, "Westward the course of empire takes its way," true of the United States?
2. "The true point of view in the history of this nation is not the Atlantic coast, it is the great West. Even the slavery struggle . . . occupies its important place in American history because of its relation to westward expansion." Do you agree with this? [F. J. Turner, *The Frontier in American History*, in *Proceedings American Historical Association*, III, 200.]
3. Was settlement or speculation the more important motive in Western pioneering? [T. Flint, *Recollections*, 198-207; F. J. Turner, *The New West*, chap. 6.]
4. Where were the important Western settlements? Why were these particular localities chosen? [A. B. Hart, *History Told by Contemporaries*, III, 97-106.]
5. How did a Western emigrant move in the days before the railways? [Hart, *History Told by Contemporaries*, III, 114-119.]
6. What was the character of the river craft, and of navigation on Western rivers? [A. B. Hulbert, *Waterways of Western Expansion*, chaps. 3-6; W. L. Abbot, *American Ships and Sailors*, 268-269.]
7. What attempts have been made to restrict the navigation of the Mississippi River other than that mentioned in the text? [T. J. Lawrence, *International Law*, p. 188; E. Schuyler, *American Diplomacy and Commerce*, chap. 6.]
8. What was Mason and Dixon's line? How did it come to be established? [E. Channing, *Students' History of the United States*, 115-116; A. B. Hart, *Essentials*, 109.]
9. Describe the abolition and the anti-abolition sentiment in the North, 1830-40. [E. Channing, *Students' History*, 423-427.]
10. As the population of the cotton States grew, what proportion was white, what slave, and what free colored? [E. C. Seaman, *Progress of Nations*, 1, 584; Fifth, Sixth and Seventh Census, Eighth Census (1860), vol. on Pop. vii-xvi.]
11. Could the South have diversified its crops and produced its own food products, manufactured goods, etc.? Why did it not do so? [E. Ingle, *Southern Sidelights*, chap. 3; De Bow, *Ind. Resources of So. and West*, arts. Agriculture, Cotton, Slavery, South, etc.]
12. What were the exports of cotton during this period? Was there any connection between them and the total imports, and the countries involved? [L. Woodbury, *Writings*, III, 272.]
13. How much of the cotton raised was consumed at home? How much in the South? [Woodbury, *Writings*, III, 289-311.]
14. In what States were the land sales greatest? What was the growth

of population during the decade 1830-40 in these States? Does this show anything as to whether the lands were bought for actual settlement?

15. What effect did the sale of land to speculators have upon its actual settlement?

16. Do the governments of other countries own land? Would it have been better for the United States to have retained the ownership of most or all of the land, instead of giving it away? [H. C. Adams, *Science of Finance*, 247-254; A. Marshall, *Principles of Economics*, 500, n. 2.]

17. Did the Pre-emption Act benefit land speculators or settlers?

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CHAPTER XIV

TRANSPORTATION AND INTERNAL IMPROVEMENTS

The transportation problem at this time was how to obtain adequate facilities to connect the distant sections of the rapidly growing nation, and to afford to every section an outlet to suitable markets. In solving this, successive methods were tried and then partially discarded in favor of better ones. Problems of engineering, of finance, and of politics had to be met in furnishing these facilities.

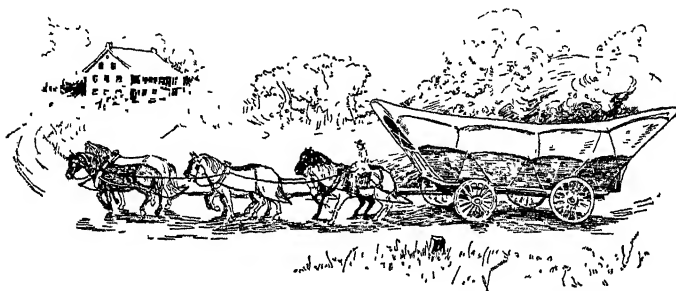
Importance of transportation in the United States.—At every period of our history the need of improved means of transportation has been pressing. This has, from the first settlements, been the essential condition of the opening up of the continent. As the population began to push westward across the mountains and away from easy water communication with markets, the need became greater. The political necessity of interstate communication was emphasized by the Revolution and the separatist tendencies of the rapidly growing Western territory, and with the establishment of the Union a movement for improvement was inaugurated. At no time was the demand for betterment so urgent as it was during the period which succeeded the War of 1812. The difficulties of transporting troops revealed the insufficiency of existing means of transportation, and the settlement of the West which followed made improvement absolutely imperative. Only by this means could the vast interior of the continent be made accessible to the people of the United States and be connected, economically as well as politically, with the Atlantic seaboard. The westward movement of the population and the development of our resources were made possible only by the building of means of communica-

tion better than the old trails or natural waterways. And yet so slow was the early movement that in 1803 Thomas Jefferson said it would be a thousand years before the region east of the Mississippi could be fully settled. If the people had been compelled to depend exclusively upon natural waterways and roads, this would probably have been true.

Stages of development.—The turnpike, the canal, the steamboat, and the railroad all mark successive stages in the improvements which were effected. The opening of the Southwest, the development of commerce between that section and the North and East, and the growth of population throughout the entire Western territory, at once occasioned, and were made possible by, the improvement of the means of communication and trade. The demand for better facilities led to the investment on the part of the people, not only in the Western country, but in the East as well, of immense sums of capital in these enterprises, and resulted in an unexpected but revolutionary change in the economic policy of the country.

The history of transportation in the United States divides itself logically into three periods: the turnpike period, the river and canal period, and the railway period. Of these the first belongs to the time between the Revolution and the War of 1812. Before this movement had more than fairly gained headway, canals began to be built, and for some time also the use of the steamboat greatly stimulated river navigation. This period may be said to have continued from 1816 to 1850. About the latter date railroad building, which had begun twenty years before, set in on a considerable scale and railroads began to threaten the supremacy of the canals; by 1860 they had almost superseded the latter.

The turnpike period.—The first American turnpike was built in 1792, and soon New York, Pennsylvania, and New England were fairly well supplied with them. They were a great improvement over the early local roads, for they were built as continuous lines for through traffic, and in spite of high tolls greatly reduced the cost of transportation. But,



CONESTOGA WAGON

A favorite type for transporting freight across the Alleghenies to the Ohio and the Mississippi valleys previous to the introduction of the railways. Drawn by four to seven horses, they could carry from four to six tons, on which the rates from Philadelphia to Pittsburgh were about \$20 hundred pounds; the trip between these points was made in twenty days. They were first extensively used in the Conestoga valley, from which they derived their name. The body was built higher at each end than it was in the middle, so as to prevent its contents from spilling when it went up or down hill.

as compared with water carriage, land transportation was still very expensive. It cost about 33 per cent of the value of goods to convey them from Philadelphia to Kentucky by land, and only 4 to 4½ per cent from Illinois to New Orleans by water. On the average it cost about \$10 a ton for every 100 miles to transport goods by land; articles which could not stand these rates, as flour and grain, were excluded from a market unless they found an outlet by water. During the continental wars the great demand abroad for our agricultural staples increased the need at home for better means of communication. "In a few years," says McMaster, "a sum almost equal to the domestic debt at the close of the Revolution was invested by the people in the stock of turnpike companies."

Until 1807 the roads and turnpikes in the country had been constructed for the most part by private companies, though often with State aid. Those to the West had been built by the shortest routes through the gaps in the mountains, starting mainly from Philadelphia; Pittsburgh was an important point of trans-shipment and was growing

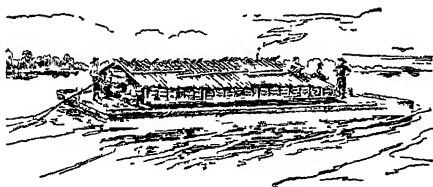
rapidly. "You may go from Philadelphia to Pittsburgh," wrote Seybert, "in the stage, 310 miles, in five and a half days, and be lodged every night on the route."

Federal aid.— In the year 1807 Gallatin made his famous Report on Roads, Canals, Harbors, and Rivers ; he proposed a comprehensive scheme of internal improvements by Congress, which would involve an expenditure of about \$20,000,000. The net result of the ensuing agitation was the construction by the Federal government of the Cumberland Road or the "National Pike" from Cumberland to Vandalia, Ill. This was completed in 1838 at an expense of \$4,300,000. Congress readily entered upon this policy of internal improvements, not merely for the economic purpose of securing better and cheaper transportation, but for political reasons also ; a minor consideration was the greater speed and safety that would be given to the mails. As a solution of the problem of improved transportation, however, the building of roads was inadequate, and before the Federal government could enter upon a more general scheme of internal improvements, doubts as to its constitutionality brought the Federal system to an end. But the movement did not cease ; better means of communication must be had, and the work of providing them was next taken up by the States.

The river trade.— The second stage in the development of adequate transportation facilities on a large scale was the utilization of the natural waterways. On the Atlantic coast the tidal rivers and the bays and other sheltered waters had been used since the colonial settlements. For the Western settler the Mississippi River and its tributaries offered an unrivaled network of navigable waters.

In the frontier of a country, according to Ratzel, is to be found an index of its growth or decay. Judged by this standard the early Western settlements were significant of great national vigor. Cut off as they were from easy communication with the Eastern seaboard, they were compelled to become largely self-supporting and economically indepen-

dent. Of necessity the settlers were forced, by the high prices of imported goods, to manufacture articles of daily use. Almost every community had a grist and saw mill, while many had forges, tanneries, and salt works, paper and cotton mills. A few products like hides, furs, and ginseng



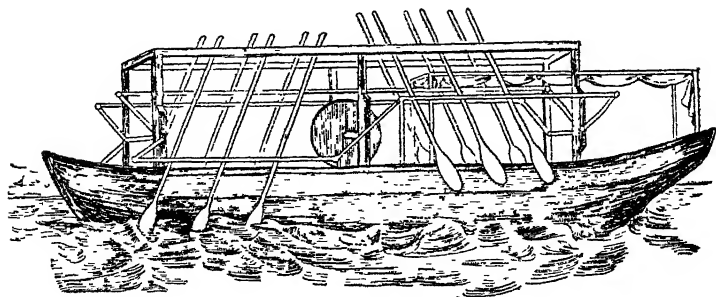
MISSISSIPPI RIVER FLATBOAT

Flatboats were the chief means of conveying goods to market in the West. They could be floated only down stream, and were built of materials that could be broken up at the end of the voyage and sold as lumber. It took four weeks to make the journey from St. Louis to New Orleans with such a craft.

they could send East by pack horses or wagon, while hogs, cattle, and horses could be driven over the mountains; but most of their produce found its way down the Mississippi. Some manufactured articles were shipped from the East by wagon to Pittsburgh, from which place they were

distributed by water. Down to 1807, however, the West showed little commercial development; a growing population found easy subsistence on a fertile soil, but they had as yet little in the way of surplus products to sell and no important market. By 1807 the total value of the produce received at New Orleans was only \$5,370,000.

The invention of the steamboat.—During the period of these foreign entanglements a peaceful revolution of far greater moment was proceeding at home; this was the invention of the steamboat. As early as 1783 Oliver Evans began experimenting with the application of steam to the propulsion of wagons and boats, but not until 1804 did he successfully carry out his plans. In that year he drove a wagon by steam through the streets of Philadelphia and then propelled his vehicle, the *Oruktor Amphibolos*, up the Schuylkill by means of paddle wheels. Better claims for priority were advanced by James Rumsey and John Fitch, about the same time. Fitch began experimenting with his

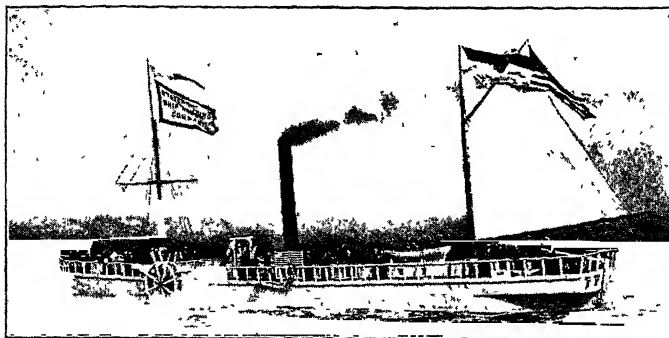


FITCH'S SECOND BOAT

The second experimental boat of John Fitch was finished in May, 1787, and was propelled by oars fastened to a frame. It ran on the Delaware and made a speed of eight miles an hour.

steamboat in 1785, and in the summer of the following year made his first trial trip on the Delaware; paddle wheels were first used and later a system of six upright oars on each side. The astonishing speed of eight miles an hour was made. Pennsylvania granted Fitch "the sole right and advantage of making and employing the steamboat by him lately invented for a limited time," namely, fourteen years. A similar monopoly was granted by Delaware, New York, and Virginia. Regular trips were made during the summer of 1790, between Philadelphia, Bordentown, Trenton, and Wilmington, but were abandoned after that time, as they proved unprofitable.

Meanwhile, Rumsey had succeeded in propelling a steamboat of his own invention on the Potomac, in December, 1787. By his method water was sucked in at the bow and ejected at the stern. On the trial trip a speed of four miles an hour was attained against the current. Before the end of the century other successful experiments had been made by Nathan Read at Salem, by Samuel Morey on the Connecticut, by William Longstreet on the Savannah, by Elijah Ormsbee at Providence, and by John Stevens on the Hudson. Defects in the engines, in the size of the wheels, and in other particulars prevented any of these inventions from



FULTON'S CLERMONT

When the *Clermont* started on her epoch-making trip up the Hudson in August, 1807, skeptical crowds lined the shore to see "Fulton's Folly." Fulton himself wrote: "The morning I left New York there were not perhaps thirty persons in the city who believed that the boat would even move one mile per hour, or be of the least utility." The trip of 150 miles from New York to Albany was made in 32 hours. While the speed was slow, the practicability of the steamboat had been successfully demonstrated and a new era in water transportation introduced.

becoming commercially profitable, however, and the honor of first making the steamboat a practical success was reserved for Robert Fulton.

In August, 1807, Fulton sailed the *Clermont* from New York to Albany, 150 miles, in 32 hours. The vessel was 130 feet long, and was provided with side wheels 15 feet in diameter, with buckets 4 feet wide. Clumsy as the vessel was, it demonstrated the practicability of steam navigation by water and secured for her owners, Fulton and Livingston, a monopoly of the waters of New York State for twenty years. Steamboats now began to come into general use: the summer of 1809 saw one on Lake Champlain, another on the Raritan, and a third on the Delaware. Two years later the steamboat was introduced on the Ohio, and the era of steam as applied to water transportation had fairly begun.

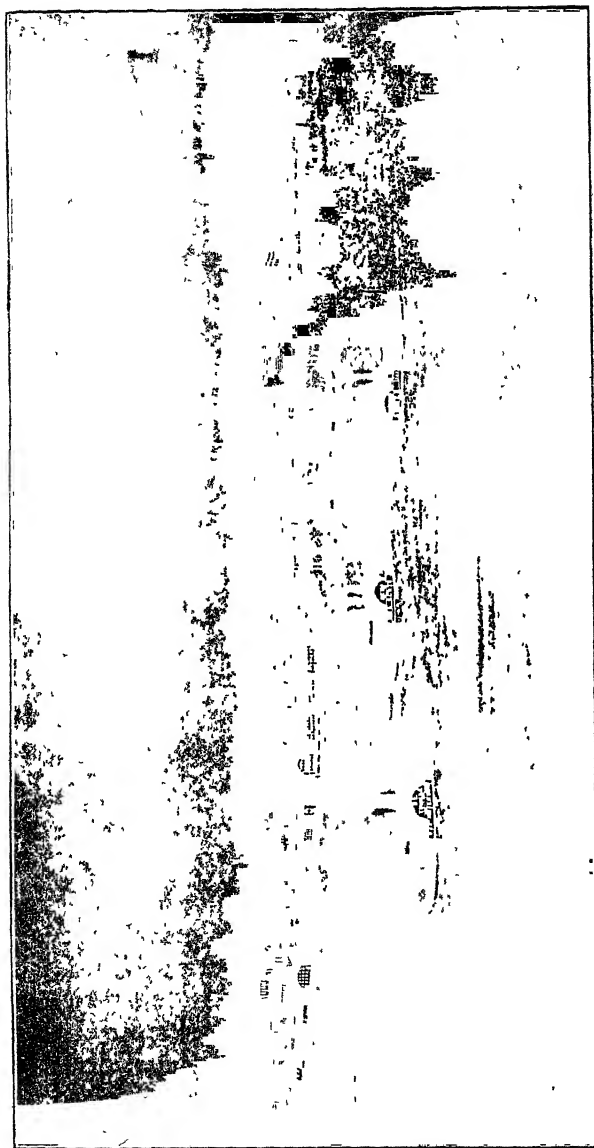
The introduction of the steamboat on Western waters.
— Within four years after the launching of the *Clermont* on the Hudson (1807) the first steamboat was introduced on the Ohio; but not until 1816 did it succeed in making the

trip up the Mississippi River from New Orleans against the swift current. With that event began the era of successful steam navigation on the Mississippi and its tributaries. The number of steamboats on the Western rivers increased rapidly, from 14 in 1815 to 200 in 1829, and 450 in 1842. An especial impetus was given to the steamboat trade in 1824 by the decision of the Supreme Court in the celebrated case of *Gibbons v. Ogden*, that the waters of the Hudson, and hence of other rivers throughout the United States, were the heritage of the people and could not be monopolized by any State or individual. A company, headed by Fulton and Livingston, who had made the first experiments on the Ohio and the Mississippi, had obtained a charter from Louisiana giving them the exclusive right of navigating the Mississippi with steam vessels for fourteen years. This monopoly was now broken down and navigation made free to all, subject only to Federal legislation. In 1825 the steamboat had passed all competitors and in the next year carried 57 per cent of all the freight to New Orleans.

Side by side with the steamer a considerable flatboat trade still existed, of which a picture is given by Levi Woodbury, who made a trip down the Mississippi in 1833.

At every village we find from ten to twelve flat-bottom boats, which besides corn on the ear, pork, bacon, flour, whiskey, cattle and fowls, have a great assortment of notions from Cincinnati and elsewhere. Among these are corn brooms, cabinet furniture, cider, plows, apples, cordage, etc. They remain in one place until all is sold out, if the demand be brisk ; if not, they move farther down. After all is sold out they dispose of their boat, and return with the crews by the steamers to their homes.

In course of time, as the plantations grew larger, this method of peddling from wharf to wharf declined. The planters engaged agents at New Orleans to sell their cotton and to purchase supplies, which were shipped back by steamer. After about 1846 there was a gradual decrease in the number of flatboats, and by 1856 they had ceased to be a factor in the river trade and were no longer listed among the arrivals at New Orleans.



MISSISSIPPI RIVER STEAMERS AT CINCINNATI, 1830

After 1812 steamers multiplied on the Western rivers, as the boats could be constructed anywhere out of the abundant timber, while the fuel was collected from the wood on the river bank. Only the engines and the boilers had to be brought over the mountains. In 1820 it took thirty-five days to go up from New Orleans to Pittsburgh by steam and ten days to go down.

Extent of the internal trade.—The steamboat had furnished the Western territory with a fairly rapid and adequate means of transportation, and its effect upon the trade of that section was quickly seen. Rates were high at first : from New Orleans to Louisville in 1816 freight rates were \$112 a ton and passenger fares \$125 (half rates down stream), but they were materially reduced as soon as the trade became established. The improvement in speed, by reducing the time, increased the number of trips. The value of the commerce carried on the rivers expanded greatly. The value of the produce received at New Orleans in 1816 was \$8,065,540, of which at least 80 per cent came from the Ohio and upper Mississippi. This increased by 1829 to \$22,065,518, and to \$49,763,825 in 1840.

The shipments were at first raw agricultural products, then articles like pork, flour, and others that required some process of treatment, and finally simple manufactured articles, such as bagging, rope, twine, candles, glass, and iron. They tell the story as well of the industrial advance in the Ohio valley as of the growing commerce between the sections. By 1842 the money value of the direct river trade to New Orleans was given as \$50,506,903. Including the intermediate trade and the passenger traffic, the total commerce of the Western rivers was probably more than \$100,000,000. The following table shows the fluctuations in the amount of a few products arriving in New Orleans :

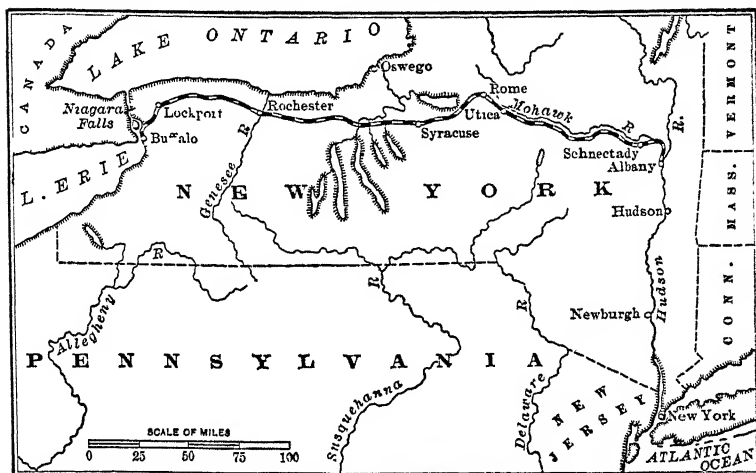
RECEIPTS OF PRODUCE AT NEW ORLEANS					
Articles	1822	1830	1840	1850	1861
Bacon, pounds . . . .	...	1,282,354	1,117,987	209,045	784,399
Corn in ear, barrels.....	57,179	42,194	152,965	42,719	22,216
Corn, shelled, sacks.....	. .	290,754	278,358	1,114,897	315,652
Flour, barrels.. . . .	120,159	360,580	482,523	591,986	281,645
Lard, kegs.....	13,003	131,111	177,303	302,366	4,290
Pork, pounds	142,800	953,200	5,099,987	10,513,895*	610,219

* 1851.

At the same time the trade on the Great Lakes was steadily growing, though not so rapidly as the river commerce. In 1816 the first steamer was built on the waters of Lake Ontario, and three years later the first steamer on Lake Erie, the *Walk-in-the-Water*, was launched. The building of the Erie Canal greatly stimulated the lake trade, the tonnage on all the lakes increasing from 3,500 in 1820 to 20,000 in 1830, and 75,000 in 1840.

But the farmers in northern Ohio and Indiana, in Michigan, and other sections of the country which were not situated on a tributary of the Mississippi, still clamored insistently for better means of communication, especially with the East. In addition to the economic weakness, there was also a political danger in the situation. The country was divided into three strongly marked sections — the East, the South, and the West — and the economic bonds holding them together, especially those between the East and the West, were not sufficiently powerful to overcome the tendencies towards separation which had even now shown themselves.

The era of canal building : the Erie Canal.— The first answer on a large scale to the demand for improved means of communication was made by New York State in building the Erie Canal, connecting Lake Erie with the Hudson River. Gallatin named six canals that had been constructed prior to 1807 at a cost of more than \$10,000,000 ; but none of any commercial importance had been attempted until the success of the Erie Canal showed the way. The plan for this was not a new one ; as early as 1792 a company had been formed to connect Lake Erie with the Hudson River. The actual work of building the canal did not begin until 1817, but within eight years it was finished. The completion of the "big ditch" was celebrated with appropriate ceremonies at Buffalo, from which point a fleet of boats proceeded to New York, where their arrival was the signal for a fresh outburst of enthusiasm. A flask of water from Lake Erie was poured into New York Bay, and the marriage of the inland waters with those of the ocean was declared to be con-



ERIE CANAL

The Erie Canal was the most important artificial waterway built in the United States. By connecting the Hudson River with the Great Lakes it formed a continuous waterway from the Middle West to the Atlantic seaboard, and had a wonderful influence in opening up the new sections of the country.

summed. The canal immediately became a source of revenue, entirely paying for itself in nine years.

Still more important than the financial returns to the State were the economic advantages of the canal to the community at large. Wherever the canal touched a waterway a thriving town sprang up, as at Syracuse, Rochester, and Utica. Buffalo and Albany, the terminals, grew rapidly and New York City became the leading port of the United States. Branch canals were built connecting the main canal with Champlain, Ontario, and Seneca lakes, and these stimulated a vigorous trade. The number of vessels on Lake Champlain before the canal was opened was only 20, but a year later there were 218. Previous to the construction of the canal the cost of transportation from Buffalo to New York City was \$100 a ton and the ordinary length of passage twenty days; most of the wheat of western New York was accordingly floated down the Delaware and the Susquehanna

to Philadelphia and Baltimore. On the opening of the Erie Canal the cost of freight fell to \$5 a ton, and the time of transit was reduced six days. Rates from Ohio to the seaboard were steadily lowered until they were about one-tenth the former figures.

Nor were the effects confined to New York State alone ; the entire Western lake district had secured an outlet for its produce, and much that previously went down the Mississippi to New Orleans was now shipped through Buffalo at greatly reduced rates. In 1824 corn was sold in Cincinnati for 8 cents a bushel, wheat for 25 cents, and flour for \$1.25 a barrel ; after the opening of the canal these commodities brought in double or treble to the Western farmers. The building of the Erie Canal had established an economic bond between the East and the West.

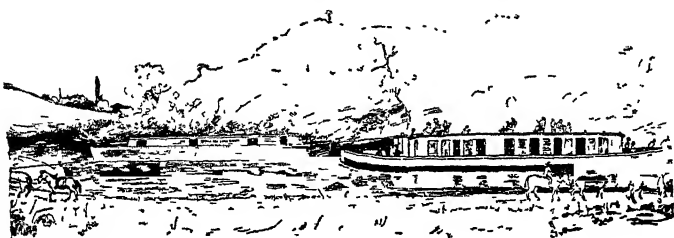
Canals in other States.— The success of this undertaking led to a perfect mania for canal building and public improvements, which was greatest in Pennsylvania, Massachusetts, Maryland, Virginia, Ohio, Indiana, and Michigan. Philadelphia, Boston, and Baltimore saw their trade threatened by the diversion of the Western commerce to New York City, and accordingly the States in which these cities were situated began to plan works to compete with the Erie Canal. The State of Pennsylvania constructed a system of canals from Philadelphia to Pittsburgh, with a portage railway over the Alleghenies, at a cost of more than \$10,000,000. It was completed in 1834, and was successful from the beginning. Massachusetts appointed a commission to inquire into the possibility of cutting a canal from Boston to the Hudson River, in order to divert some of the increasing Western trade. By the time Baltimore was ready to act railroads had attracted favorable attention as an improved means of transportation, and in Maryland the first railroad was built in 1828.

It was in the Western States, however, with their long distances and complete lack of roads, that canals were of the greatest economic significance. The opening of the Erie

Canal was the signal for similar improvements in several of these States. The most important projects were those to connect the lakes with the Ohio and the Mississippi rivers. By 1832 the Ohio Canal, from Cleveland to Portsmouth, had been built by the State of Ohio, joining the Ohio River with Lake Erie. The effect in stimulating production and diverting trade from its old routes was immediate ; three years later there were shipped from Ohio alone 86,000 barrels of flour, 98,000 bushels of wheat, and 2,500,000 staves by canal to New York.

At the same time the Western farmer was enabled to secure better prices for his goods : products, which before had glutted the local market, could now be sent to distant points where they were in greater demand. Flour, which in 1826 sold at Cincinnati for \$3 a barrel, brought \$6 in 1835, and corn rose from 12 cents to 32 cents a bushel. Currency inflation was in part responsible for this rise in prices, but the farmer attributed it rather to improvements in transportation. He could also purchase his axes, plows, and other implements for a fraction of what he had formerly paid. These facts had a powerful effect upon the settlement of the West, which was now assured profitable markets and communication with the East.

Internal improvements by the States.—When the demand for internal improvements became urgent, the States were turned to for assistance in carrying out the plans. The reasons for invoking State aid were several. In the first place, as we have seen, the Federal government, which had undertaken willingly enough the work of improving the means of communication, had been stopped from continuing it by constitutional objections. But private capital was not equal to the task of carrying out such large enterprises as were now being planned. Even if it existed in large enough amount, which was doubtful, the projects were too large and the returns too remote to warrant the risking of his whole capital by an individual. While these works of public improvement might have been entrusted to corporations, there



PASSENGER PACKET AND FREIGHT BOATS, ERIE CANAL

On the slow, but easily moving canal packet boat, travel was decidedly more comfortable than in the jolting stage coach. Seated on the cabin roof the passengers exchanged views on the scenery or the topics of the day until the cry of "low bridge" drove them down. Berths were arranged along the sides within and partitioned off by curtains. An ordinary freight boat is also shown.

was the feeling, in addition to a distrust of corporate management, that many improvements should be made that might not be commercially profitable, and that the State alone could undertake these. Moreover, the State had perpetual life and, with its high credit, could borrow the necessary capital on much better terms than could private individuals. It seemed eminently fitting, therefore, that the State governments should undertake the work of internal improvements. But there were some additional forces which should be mentioned, which explain the willingness of the State legislatures to enter upon this work.

The people of the whole country, particularly of the West, were insistent upon having improvements of every sort, and especially better means of transportation. Most of the State constitutions adopted during this period contained either directions or permissions to the legislatures "to encourage internal improvements within the State." The Federal government, though it had withdrawn from the work directly, gave assistance to the States in land and money: it donated a percentage of all sales of public lands to the States for this purpose and distributed among them the surplus revenue of the Federal government in 1837. Finally, the success of the Erie Canal, the commercial rivalry of the Atlantic ports, and the speculative fever of the period, led the

legislatures to embark on enterprises far beyond the needs or means of the people at that time.

Investment of borrowed capital.— The magnitude of the work of internal improvements undertaken by the States may perhaps be best shown by the increase in State indebtedness. Up to 1820 the States had incurred practically no liabilities, but beginning with that year their debts began to grow : in 1820 they were \$12,790,728 ; in 1830, \$26,470,417 ; in 1835, \$66,482,186. During the next five years they almost trebled, reaching over \$170,000,000 in 1838, and \$200,000,000 in 1840. Practically all of this money went into internal improvements — roads, canals, railroads, and banks.

The following table shows succinctly the purposes for which the State debts had been contracted up to 1838 :

OBJECTS OF STATE DEBTS, UP TO 1838						
States *	For Banks	For Canals	For Railways	For Roads	Miscellaneous	Total
Alabama	\$7,800,000		\$3,000,000			\$10,800,000
Arkansas	3,000,000					3,000,000
California	3,100,000	\$900,000	7,400,000		\$300,000	11,700,000
Delaware	1,390,000	6,750,000	2,600,000	\$1,150,000		11,890,000
District of Columbia	2,000,000	2,619,000	350,000	2,400,000		7,369,000
Florida	22,950,000	50,000	50,000		235,000	23,285,000
Georgia					554,976	554,976
Maryland		5,700,000	5,500,000		292,980	11,492,980
Massachusetts			4,290,000			4,290,000
Michigan		2,500,000	2,620,000		220,000	5,340,000
Mississippi	7,000,000					7,000,000
Missouri	2,500,000					2,500,000
New York		13,316,674	3,787,700		1,158,032	18,262,406
Ohio		6,101,000				6,101,000
Pennsylvania		16,579,527	4,964,484	2,595,902	3,166,877	27,306,790
South Carolina		1,550,000	2,000,000		2,203,770	5,753,770
Tennessee	3,000,000	300,000	3,730,000	118,166		7,148,166
Virginia		3,835,350	2,128,900	354,800	343,139	6,662,189
Total	\$52,740,000	\$60,201,551	\$42,871,084	\$6,618,868	\$8,474,684	\$170,356,187

* The seven other States, which at the time belonged to the Union, had no debt : Connecticut, Delaware, New Hampshire, New Jersey, North Carolina, Rhode Island, and Vermont.

It is evident that this enormous expenditure of funds involved a large investment of capital. Little of it indeed was raised by taxation ; practically all was borrowed, part at home, but most of it from foreign capitalists.

The extent to which foreign capital was being invested in

the United States, and domestic capital and labor were being applied to the work of developing the West, is well illustrated by the state of our foreign trade. During the decade 1830 to 1840 the imports exceeded the exports about \$200,000,000, and at the same time the imports of specie exceeded the exports by more than \$50,000,000, while in spite of our agricultural pre-eminence we imported more than 5,500,000 bushels of wheat during the same period. The high credit then enjoyed by the American States, which had been greatly enhanced by the payment of the national debt in 1833, enabled them to borrow these enormous sums abroad, and especially in England where capital had been accumulating, at comparatively moderate rates of interest. Ex-President Jackson in 1839 estimated that about \$200,000,000 was due from States and corporations to creditors in Europe, on which the annual interest charge was about \$12,000,000.

Failure of State enterprise.—The crisis of 1837 halted the work of internal improvements. As soon as the bubble of speculation and high prices was pricked, it was clear that many of the enterprises were premature and unnecessary. Most of them were extravagantly, if not corruptly, managed, while hundreds of thousands of dollars had been sunk in absolutely useless undertakings. When the debts, so easily contracted, began to press, several of the States repudiated their indebtedness; the worst offenders were Mississippi, Louisiana, Maryland, Pennsylvania, Indiana, and Michigan, though some of these States afterwards paid in part or in whole. The unwillingness on the part of the other States to be branded with the defaulting States as "repudiators," led to a demand, which culminated in 1842, that the Federal government assume all the State debts; but nothing came of the agitation.

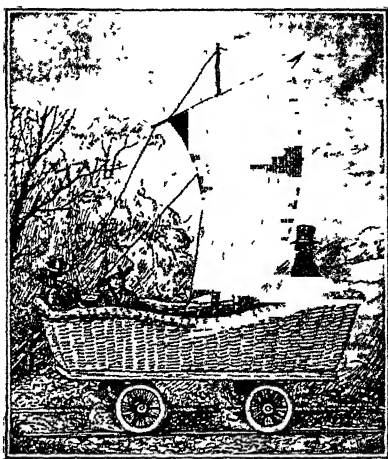
The works already built were sold by most of the States, and these now withdrew from the business of supplying railroads and canals; New York and Ohio were the only States which retained all their works. The changed attitude of

the people regarding the advisability of State enterprises found expression in the inclusion of provisions in practically all the State constitutions adopted after this period, prohibiting the use of State funds or credit for internal improvements. Having failed in the business once, they were to be debarred from further attempts along the same line. Accordingly, when the development of railroads began just at this time, the successive withdrawal of the Federal government and the failure of the State governments in this sphere left the work of building them to the enterprise of private individuals and corporations.

Importance of railways.

—Almost before the use of canals had begun, the railway, which was to revolutionize transportation, was introduced. For a decade attempts at railroad building were largely experimental, and they did not seriously compete with the canals and the rivers until after 1840. The revolutionary effect which the introduction of the railway

had upon the economic development of the country may, however, be noted briefly at this point ; its fuller description belongs to a later chapter. The turnpikes and canals had simply followed existing or natural routes of trade. They had made communication easier and had enormously increased the traffic between the different sections of the



SAIL CAR

When railroads were first built, experiments were made with sails and horses as motive power. The most successful sail car was built by Evan Thomas for use on the Baltimore and Ohio Railroad. It sailed equally well in either direction, according to the direction of the wind. Its main usefulness lay in showing how little power was needed to propel a car upon rails as compared with even the

best roads of the time.

country. The rivers, together with the canals, furnished a splendid system of transportation, but as most of these flowed north and south, something more was needed if the East was to be brought into close touch with the developing West.

It remained for the railways to break down the sectional barriers and to divert the industrial development of the country into new channels. They



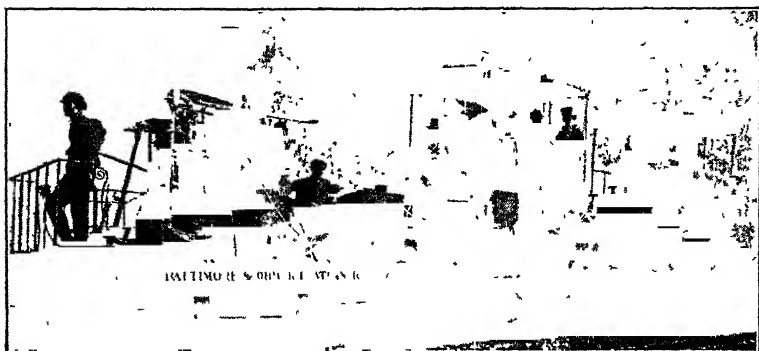
HORSE CAR

In the early days of the Baltimore and Ohio Railroad, when no one did more than dream of steam, horses were expected to furnish the motive power. The first regular passenger service on a railroad in the United States was instituted between Baltimore and Ellicott's Mills in May, 1830. The cars were propelled by horses and made the distance of thirteen miles in one and one-quarter hours.

made a cheap and quick means of transportation indispensable to the full development of the resources of the country. Had it not been for the railway the full development of the Far West, and other parts of the country untouched and inaccessible by river or canal, would have been impossible.

Early railroad building.—The first railroad in the United States was the Baltimore and Ohio, begun in 1828 and opened for traffic in 1830, although the Quincy tramway, used for transporting building stone to the Bunker Hill

were built east and west, they crossed the mountains and united parts of the country hitherto separated. With the introduction of the railway the country entered upon an entirely new phase of development. Because the country was predominantly agricultural, the chief markets for most of the produce, especially of the West and South, was on the seaboard or in Europe. The very homogeneity of pursuits rendered the interior markets small. This fact, coupled with the enormous distances which separated different sections,



"THE "ATLANTIC" LOCOMOTIVE, 1832

monument, and a couple of gravity roads in the coal regions of Pennsylvania, had anticipated it shortly. On the Baltimore and Ohio horse power and sails were used at first as a motive power, and not until after eighteen months of experiment was steam finally decided upon. The greatest development took place in Pennsylvania, especially in building roads from Philadelphia to the coal regions in the central part of the State ; in 1835 there were about two hundred miles of railroad in the State. Connection was made with New York in 1839. Farther south great activity was displayed. The Charleston and Hamburg railroad, 137 miles in length, was the longest line under one management in the world when it was opened for traffic in 1833. Massachusetts, New York, New Jersey, and Virginia contained most of the other roads built during the first decade of railroad construction.

By 1840 the railway mileage of the country had reached 2818 miles, but most of the roads were disconnected, short lines, similar to the early street railroads. In their crude construction, too, they resembled these ; the rails were wooden beams, placed lengthwise or end to end, with a strap of iron nailed on the upper surface to protect the wood from wear. On a number of roads, however, iron edge rails had

already supplanted this transitional type. The English locomotives, which were the first to be used in this country, being found too heavy and otherwise unsuited to American rails and roadbeds, American engineers soon began to build their own. Early in their history original methods began to be followed on American railroads, in the construction of both the roadbed and the rolling-stock.

SUGGESTIVE TOPICS AND QUESTIONS

1. Why were improved highways called "turnpikes"? [E. R. Johnson, *American Railway Transportation*, 13; Encyclopedias.]

2. What were the suggestions made by A. Gallatin in his report of 1807? [H. Adams, *Life of Gallatin*, 350-352; *American State Papers, Miscellaneous*, I, 724-741.]

3. What effect did the building of the Erie Canal have on the commercial supremacy of New York, Philadelphia, and Baltimore? [Tenth Census (1880), IV, 1-3; A. B. Hulbert, *Great American Canals*, chap. 4; H. C. Adams, *Public Debts*, 330; J. D. Andrews, *Report on Lake Trade*, 282.]

4. To what extent has the Erie Canal added to the wealth of New York State? [J. A. Fairlie, *The New York Canals*, in *Quarterly Journal of Economics*, XIV, 214.]

5. Do you know of any canals in the United States, other than the Erie and Sault Ste. Marie canals, which are extensively used today? [Hulbert, *Great American Canals*, E. R. Johnson, *Inland Waterways*.]

6. Why did Madison, Monroe, and Jackson veto Federal appropriations for internal improvements? Are such appropriations made today? [*Messages and Papers of the Presidents*, I, 584 (Madison); II, 142, 483-493 (Monroe).]

7. What was the "distribution of the surplus"? [D. R. Dewey, 217-222; T. Roosevelt, *Benton*, 143-156; C. Schurz, *Clay*, II, 118-123; W. G. Sumner, *Jackson*, 325-331.]

8. Describe the improvements made during this period in some one State. [Tenth Census, IV, Report on Canals and Railroads, VII, History of State Debts.]

9. Describe the repudiation of its debt by some typical State. [W. G. Sumner, *American Currency*, 162; C. Schurz, *Clay*, II, 211.]

10. Can a State repudiate its debt? Has the creditor no redress in the courts? How about the Federal government? An individual? [T. M. Cooley, *Constitutional Law*, 65; H. C. Adams, *Public Debts*, 8-11.]

11. Describe the early attempts at railroads in this country more fully.

[E. R. Johnson, *American Railway Transportation*, chap. 2 ; A. T. Hadley, *Railroad Transportation*, chap. 2 ; J. W. Starr, *One Hundred Years of American Railroading*, A. B. Hart, *Contemporaries*, III, 165-166.]

12. What was thought of George Stephenson's railway in England, and how successful was he ? [Adams, *Railroads*, Chap. 1 ; W. H. Brown, *History of First Locomotives in America*, Encyclopedias.]

13. Has the government built and operated railroads successfully in any country ? Do you think the United States government should own the railroads in this country now ? [Hadley, *Railroad Transportation*, chaps. 10-13 ; Johnson, *American Railway Transportation*, chap. 24.]

14. What is a corporation ? Are they desirable ? [Hadley, *Railroad Transportation*, 42-48, Johnson, *American Railway Transportation*, chap. 6.]

15. Why did not Fitch's or Rumsey's or Evans' steamboats succeed ? [J. L. Bishop, I, 76-77 ; McMaster, I, 435, III, 487.]

16. Did Fulton first invent the steamboat ? Is he entitled to the credit of it ? [Bishop, I, 75, W. L. Abbot, chaps. 2, 8.]

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CHAPTER XV

FOREIGN AND DOMESTIC COMMERCE

Changes in opportunities for trade in Europe and elsewhere necessitated a search for new markets and called into being new types of vessels to meet the requirements. Ocean shipping called forth individual initiative and ability to meet foreign competition in an open field. Foreign trade, both imports and exports, reflected the changing and expanding demands of this country and also its ability to produce a surplus for trade in various lines. Internal commerce showed remarkable growth. Problems of widening markets and of competition pressed to the front as the railroads developed.

American shipping after the War of 1812.—The story of the American merchant marine must now be taken up again from the point to which its history has been traced. Upon the conclusion of the Napoleonic wars in 1815, the European countries renewed their own carrying-trade in large part and thus deprived our shipowners of the lucrative business they had enjoyed for the previous two decades. With the growing production of cotton, however, for which there was an insatiable foreign demand, the loss of other forms of freight was partially made good. But as equivalent return cargoes could not easily be obtained, shipbuilding languished for some twenty-five years. The tonnage of vessels engaged in the foreign trade remained about the same between 1815 and 1840, with only slight temporary fluctuations, so that in 1839 the registered foreign tonnage was 702,400 tons, or only 27,767 tons more than in 1814. As the population was increasing, however, this really represented a relative falling off, from a per capita tonnage of 13.43 tons in 1810 to 4.25 tons in 1839. The capital of the country was being invested during the period in manu-

factures, internal improvements, and the development of our internal resources, which offered larger returns than the carriage of ocean freight. The high tariff, too, which imposed duties upon the materials entering into shipbuilding, considerably increased the cost of construction and equipment ; and at the same time, by stimulating our domestic industries, reduced relatively the amount of foreign commerce to be transported. About 1830, moreover, England began to increase her shipping and to bid vigorously for the ocean carrying-trade.

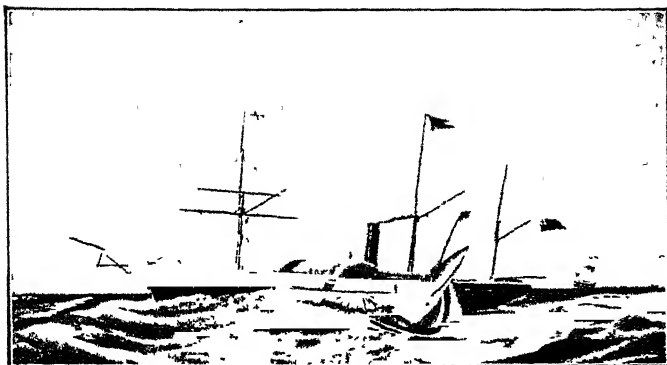
Commercial legislation and treaties.—During this period a new step was taken in shipping legislation by the establishment of reciprocal liberty of commerce. By the act of March 3, 1815, all the discriminating duties imposed by former laws, both on the tonnage of foreign vessels and on the goods imported in them, were repealed in the case of the direct trade with any foreign nation which should abolish its countervailing duties against us. In accordance with this act, a commercial treaty with England of July 3, 1815, provided among other things for equality of duties and treatment and no discrimination between England and the United States. But England kept her West Indian ports closed to our vessels after the treaty as before, and we soon retaliated by new discriminating duties. In 1830 England agreed to open these ports and we removed many of the restrictions upon British commerce. As a result our imports from the British West Indies increased from \$1901 in that year to \$2,965,585 in 1840.

To meet the absolute prohibition of those States which simply closed their ports to us, Congress in 1817 made our navigation laws still more severe : the prohibition of the coasting trade to other nations was repeated, and ships engaged in foreign trade, unless two-thirds manned by American sailors, were taxed fifty cents a ton. But in this act also the door was left open for repeal of the restrictive legislation in the case of foreign nations which should remove their restrictions upon our vessels ; and in 1828 another act pro-

vided for reciprocity with foreign nations in the indirect or carrying-trade. Treaties were accordingly negotiated, which provided for "reciprocal liberty," with France in 1822, Prussia in 1828, and in subsequent years with Hamburg, Bremen, Lubeck, Norway and Sweden, Austria, Russia, Portugal, Holland, Belgium, and Switzerland. Commercial treaties were also signed with most of the Central and South American States.

The American clipper.— American shipbuilders had during this time developed a type of vessel which was superior to all others with which it came in competition — the magnificent sailing clipper. In the building of wooden vessels both the cost of materials and the skill of our shipbuilders gave us an advantage. So superior in speed were they that, according to Levi Woodbury, an American vessel could make three trips to England in the time a British vessel was making two, while the changes in rigging, the use of taller masts with smaller but more sails, and the use of improved blocks and mechanical appliances reduced the number of seamen to two-thirds of those required on a foreign ship. The high character of masters and crews also made American vessels preferred by shippers.

Beginning with about 1840 a number of events occurred which combined to stimulate greatly the shipbuilding industry in the United States, and to give to American sailing vessels a leading place as ocean carriers in the world. In 1840 the British-China war diverted a large part of the China trade into American hands and led to the building of the China clippers. This foreign trade was increased by the revolutionary outbreaks in Europe in 1848, by the Crimean War in 1853 and 1856, and by the rebellion in India in 1857. The discovery of gold in California and Australia and the enormous emigration to those countries led to an unprecedented passenger traffic at fabulous rates, which, with the large immigration into the United States after 1846, gave immense profits to shipowners during these years. At the same time the lowering of the tariff in 1846 had reduced



THE STEAMSHIP ASIA

The *Asia* was a wooden-hull steamer built for the Cunard line about 1847, for the New York-Liverpool service. It cost \$575,000, had horsepower of 816, and took eleven days to cross the ocean. It was provided with side-lever engines and was driven by side wheels, and also carried generous spars and canvas in case of accident. It is a good specimen of an ocean steamer of 1850.

somewhat the cost of shipbuilding in the United States. As a result of this stimulus there was a great over-production of ships: the tonnage engaged in foreign trade grew from 763,838 tons in 1840 to 2,494,894 tons in 1861, the highest figure for foreign tonnage which was reached in our history until 1917. Including the ships engaged in the domestic trade and the fisheries, our tonnage was one-third that of the world, and was practically equal to that of Great Britain.

The introduction of the iron steamship.—During this very period of the supremacy of the American sailing vessel, a change was being effected in shipbuilding which was destined to revolutionize the ocean carrying-trade. This was the substitution of steam for sails, and of iron for wooden hulls. Although steamers had been used for some time in the coasting trade, it was not until 1838 that the *Sirius* and the *Great Western* crossed the ocean propelled by steam alone, the latter taking only fifteen days for the voyage. The utilization of coal in the production of steam (1836) and the invention of the screw propeller (1836-8) contrib-

uted materially to the success of ocean steam navigation. In the year 1838 iron shipbuilding for ocean commerce began.

England immediately took the lead in the construction of iron steamers, while our shipbuilders, confident in their superiority, clung to the wooden ship. Nearly 25 per cent of the total tonnage of vessels built in Great Britain in 1853 were steamers, and a little more than 25 per cent were of iron. In the United States, on the other hand, although 22 per cent of the total tonnage built consisted of steamers, hardly any were of iron. The vessel of the future was to be the iron or steel steamer, and by not changing the material in the construction of their ships our shipbuilders gradually yielded first place to Great Britain, which seized the opportunity of regaining her lost position on the seas. The British government encouraged the industry by subsidizing the steamship lines for mail service, beginning with the Cunard line in 1838 and continuing down to the present time. Between 1845 and 1848 Congress granted subsidies to American steamship lines, of which the Collins line between New York and Liverpool successfully competed with the Cunard line, but opposition to the subsidy policy finally caused the withdrawal of this form of encouragement. Although our tonnage was increasing rapidly, in 1861 only 65 per cent of our foreign commerce was being carried in American bottoms, as against 92 per cent in 1807, and 83 per cent in 1840.

Foreign commerce.— Our foreign trade had been greatly reduced by the embargo and the War of 1812, but after the declaration of peace imports and exports both increased enormously, as a result of peculiar and temporary circumstances.¹ After 1818 there was a steady decline in our foreign commerce until about 1830, because of tariff legislation, the development of our manufactures and of our internal resources, the passage of the English corn laws, and protective tariff legislation of European countries. In the early thirties, however, the great development in the production of cotton, which now constituted over one-half of our total

¹ See Chap. XI, page 162.

exports, the growth of the West, and the large investments of foreign capital in our system of internal improvements, combined to raise our foreign commerce to more than \$300,000,000 for the year 1836, the highest figure yet reached. The panic of 1837 and the resulting depression reduced our foreign trade to \$125,000,000 in 1843, but between 1847 and 1860, with the brief exception of the year 1857, in which a second panic occurred, the foreign trade of the United States reached the highest point it had ever attained. In 1861 our imports were \$353,616,119, and our exports \$333,576,057, or a total of \$687,802,176.

The causes for this expansion have already been mentioned and need not be repeated here. Of the exports cotton constituted about one-half, while other agricultural products, gold bullion, and manufactured articles made up about one-third of the total. Most of the exports went to Great Britain, and to Germany, Holland, France, and Spain. About half of the imports were manufactured articles from these same countries, while another large item was food-stuffs from the West Indies and South and Central America. The major part of the export trade was carried on from New York, New Orleans, Boston, Baltimore, Mobile, Charleston, and Philadelphia, in the order named.

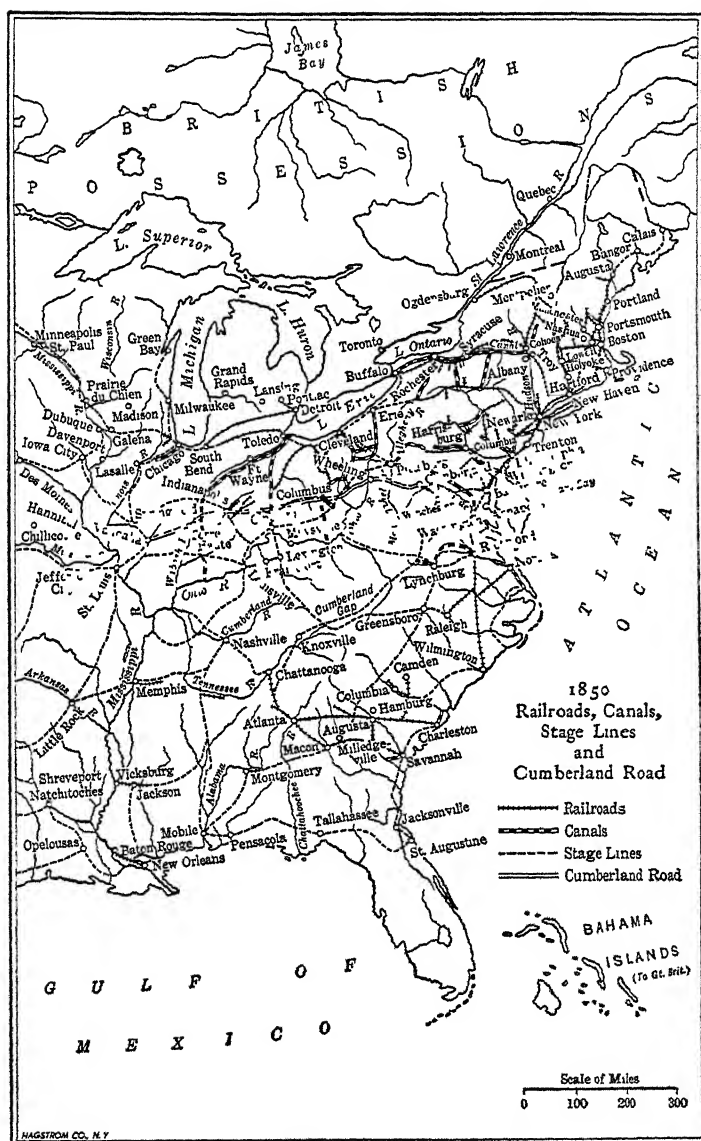
Coastwise trade.—After the discriminating duties of 1789, but even more after the enactment of the law of 1793, which prohibited foreign vessels from engaging in the coasting trade, the number of vessels engaged in the domestic commerce of the United States increased rapidly. In 1793, the first year in which an accurate list of American shipping was obtained, the tonnage of vessels so engaged was 122,071 tons; in 1817 it was 500,000, and in 1840 it had grown to 1,000,000 tons, as a result of the great expansion of the lake and river commerce. In the next twenty years the tonnage more than doubled again, amounting to 2,500,000 tons in 1860. Ever since 1820 the tonnage of vessels in the domestic trade had equaled that in foreign trade, and after 1860 it greatly exceeded the latter. It is impossible to say just

how this traffic was divided between the coasting and the inland trade, but each branch was expanding.

There was a profitable coastwise trade between Northern and Southern ports, carried on by Northern vessels, which carried New England fish, manufactures, boots and shoes, drygoods, and other commodities, to the South, to an amount of more than \$100,000,000 a year. In return they brought back cargoes of Southern staples, cotton, tobacco, and also food-stuffs, hay, and similar commodities, both for export and for domestic consumption. The falling off of foreign commerce was amply compensated by the growth of domestic commerce, which provided an outlet for American vessels. Here the sailing vessel was able to hold its own against the steamer. Opportunity for longer voyages was given when the rush to the California gold fields began; this was held to be coastwise trade and was consequently restricted to American vessels and brought in large, though temporary, profits. The building of the Chesapeake and Albemarle Canal, which was completed in 1860, reduced the dangers of the perilous voyage round Cape Hatteras, and by so much aided the coasting trade.

Internal commerce.—The inland trade was undoubtedly more important than the foreign trade during this period and was steadily becoming more so. The relation between these two branches is indicated by a statement of Secretary R. J. Walker, in his treasury report for 1847-48: "The value of our products exceeds three thousand millions of dollars. . . . Of this \$3,000,000,000 only about \$150,000,000 are exported abroad, leaving \$2,850,000,000 at home, of which at least \$500,000,000 are annually interchanged between the several states of the Union."

The Mississippi River trade between North and South continued to increase steadily in volume. The shipment of agricultural supplies from Northern farms and later of manufactured goods and coal from the growing industrial communities to Southern plantations, with smaller return cargoes of sugar, molasses, West India fruits, etc., gave rise

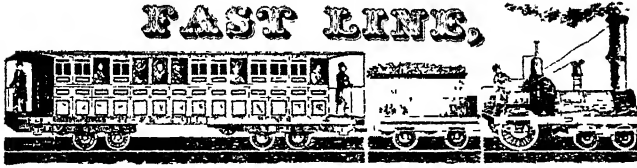


to a flourishing trade on the Western rivers. Even after the railroads began to divert the shipment of flour, grain, and provisions to Eastern markets, the expanding production of cotton in the lower Mississippi region, most of which was shipped to New Orleans, prevented any falling off in the amount of produce received by that market. But in 1845 it was estimated that of the produce of the Mississippi valley shipped to the seaboard fully one-half found its way to market via the canals and the railroads to the Atlantic coast. Of the receipts at New Orleans in that same year but 18 per cent consisted of Western produce, as compared with over 60 per cent at the beginning of the century. The total New Orleans trade, however, grew from \$49,763,825 in 1840 to \$185,211,254 in 1860.

Trade between East and West.—That branch of internal commerce which consisted of the exchange of goods between the East and the West grew somewhat more slowly, but ultimately outstripped the other. At the beginning of this period most of this trade was via the Erie Canal and the Great Lakes. Not until 1835 did Western produce first find its way in large quantities to the Eastern seaboard, but by 1840 grain was already being shipped east from Ohio, Indiana, Michigan, and Illinois, and in the following year wheat was sent for the first time from Wisconsin. The quantity of Western grain and flour reaching tidewater at New York by way of the Erie Canal amounted in 1840 to 1,066,740 barrels of flour, and rose to 3,084,959 in 1850, and 4,344,387 in 1860. Though these constituted the bulk of this traffic there was also a considerable movement eastward of pork, bacon, and other provisions, of lumber, and towards the end of the period, of coal, copper, and iron. The west-bound shipments consisted of manufactured goods, such as dry goods, boots and shoes, hardware, nails, machinery, paper, and articles of tin and copper, drugs, medicine, and general merchandise. These were smaller in volume than the east-bound shipments, but were of greater value, a feature which has always been characteristic of the traffic between these two

PIONEER

FAST LINE,

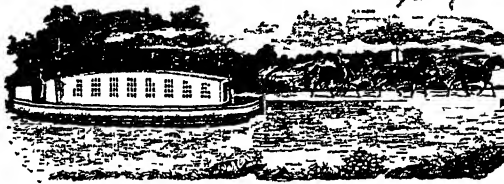


BY RAIL ROAD CARS AND CANAL BOATS,

From Philadelphia to Pittsburgh,
THROUGH IN 3½ DAYS:

AND BY STEAM BOATS, CARRYING THE UNITED STATES MAIL.

From PITTSBURGH to LOUISVILLE.



Starts every morning, from the corner of Broad & Race St.

Its large and splendid eight wheel cars, via the Lancaster and Harrisburg Rail Roads, arriving at the latter place at 4 o'clock, in the afternoon, where passengers will utilize the "Packets" which leave at 11 o'clock in a very special manner, having been built expressly for the accommodation of Passengers after the most improved models of boats used on the Erie Canal, and are not surpassed by the boats used upon any other Line.

The Boats are commanded by old and experienced Captains, several of whom have been connected with the Line for the two last seasons, and for speed and comfort, this Line is not excelled by any other in the United States.

Passengers for Cincinnati, Louisville, Natchez, Nashville, St. Louis, &c.

Will always be certain of being taken on without delay, as this Line connects with the Boats at Pittsburgh, carrying the Mail.

OFFICE, N E CORNER OF FOURTH AND CHESNUT ST.

For rates apply as above, and at No 200 Market Street, at the White Swan Hotel, Race Street, at the N E corner of Third and Willow Streets, No 31 South Third Street, and at the West Chester House, Broad Street.

Philadelphia April 1837

A. B. CUMMINGS, Agent.

TRAVELING IN 1837

This advertisement shows the character of the transportation service in 1837 and the following decade. In those days the journey from Philadelphia to Pittsburgh took three and one-half days. Now it takes less than nine hours by train: four hours by airplane.

sections. For instance, the total east-bound freight on the Pennsylvania railroad in 1859 was 353,164 tons; westward it was 190,705 tons. On the New York Central the total east-bound tonnage was 570,927 tons; the west-bound was 263,392 tons. The tonnage of vessels on the lakes grew to correspond with this trade, from 50,000 tons in 1841 to 450,000 tons in 1860.

Primarily responsible for this growing trade between the East and the West was the development of manufacturing in the East, and the opening of foreign markets to American grain. As factories multiplied and cities grew the increasing population created a domestic demand for Western agricultural produce, while the repeal of the English corn-laws and other changes in Europe opened up new markets abroad.

Railroad competition.—In the transportation of this developing trade railroads became steadily more important. While the water routes continued to be the base of all extensive transportation movements, the railroads were now beginning in a few cases to develop a serious rivalry. The carriage of coal over the Reading railroad in competition with the Schuylkill Canal, and of flour over the New York Central in competition with the Erie Canal, showed the economic possibilities of the railway in the solution of the problem of cheap freight movements. For the most part, however, the railroads that were built in the United States prior to 1850 were regarded as feeders to the lakes and rivers, or as connecting links between the lakes and the Atlantic seaboard. The total amount of traffic moved on the waters in or about the United States still greatly exceeded that carried by the railroads; not until 1860 was the proportion reversed. In that year it was estimated that the railroads carried two-thirds of the total internal trade. The freight business, even of the trunk lines, still remained comparatively small; the great development of railways was not to come until after the Civil War.

In spite of this small showing, the influence of the railroads in developing the West, in building up its population



RAILROAD STATION AT LANCASTER, PA.

The trip from Philadelphia to Pittsburgh was made by the Pioneer Line via Lancaster in three and one-half days. Here there was a meeting of the old and the new methods of transportation—the emigrant wagon and the railroad.

and moving its produce, and in reducing the cost of transportation, was enormous. About 1850, Henry C. Carey wrote: "Twelve years since the fare of a passenger from Chicago, Illinois [by lake and rail to New York City], 1500 miles, was \$74.50. It is now but \$17. . . Twelve years since the cost of transporting a bushel of wheat from Chicago to New York was so great as effectually to keep the grain of that country out of the market. Now a bushel of wheat is transported the whole distance, 1500 miles, for 27 cents. A barrel of flour can be transported from Chicago to New York for 80 cents." Indeed, it may be said that without the railroads the increasing produce of the West could not have been marketed at all.

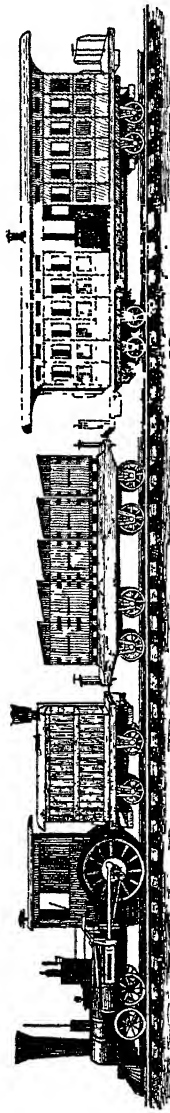
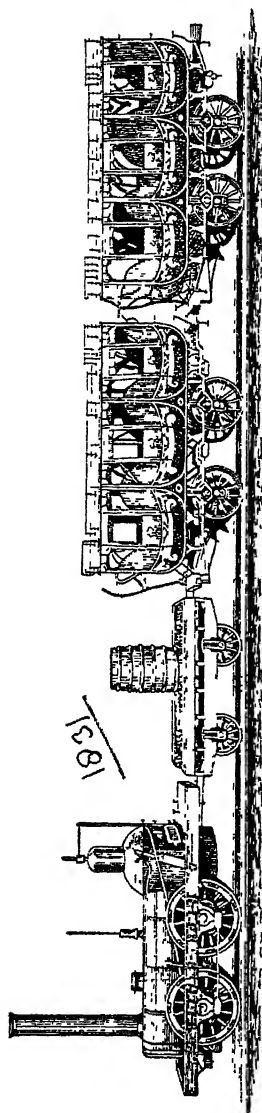
Railroad building.—After 1840 a number of mechanical, engineering, and manufacturing improvements were made in the United States which greatly facilitated railroad construction. Perhaps the most important was the substitution of iron rails for the flat strips which had previously been used, and which now permitted both a heavier load and greater speed; about 1844 the manufacture of iron rails began in the United States to supply the increasing demand. During the decade 1840-50 railroad building was most rapid in New England and the Middle States; and by 1850

there were 9021 miles of railroad in the country. In the following decade the Middle and the South Atlantic States developed their transportation systems on much the same lines as they exist at present, while the then Western States, between the Alleghenies and the Mississippi, entered upon an era of rapid construction. Chicago was connected with New York in 1853, and the following year the Mississippi was reached. In 1855 St. Louis was given through rail connection with New York, and the building of lines into the Northwest was begun, one of which reached the Missouri River in 1858. The total mileage of the country in 1860 was 30,635 miles, or more than three times what it was ten years before.

For reasons already enumerated, railroad building at this time was left in the hands of private individuals or corporations ; but although the States did not engage directly in the construction of railroads, they gave valuable assistance by subscriptions of stock, loans of State credit, and finally by land grants. The Illinois Central was the first road to receive a land grant, in 1851, from the State of Illinois, but the example was quickly followed by Missouri, Arkansas, Michigan, Wisconsin, Iowa, Florida, and Louisiana. Up to 1861 there had been granted for internal improvements, mostly railroads, 31,600,842 acres of public lands.

Improved means of communication.—Probably the most important single event of this period was the invention of the electric telegraph. As early as 1832 Samuel F. B. Morse was experimenting with a plan of telegraphic communication, and in 1838 exhibited his invention to congressional committees; in 1843 Congress voted him an appropriation of \$30,000 to establish a line between Washington and Baltimore, which was put into successful operation in June, 1844.² By 1860 about 50,000 miles of telegraph were built in the United States, connecting all the important cities of the

² The electro-magnetic telegraph of Cook was patented in England in June, 1837, and in July of the same year Steinheil put his telegraph into operation between Munich and Bogenhausen.



DEVELOPMENT OF THE RAILROAD TRAIN

The locomotive and cars in the upper picture comprised the first train drawn by steam in the State of New Jersey, Nov. 12, 1831. The passenger cars show the early use of stage bodies on car trucks. In the lower picture is shown the evolution of the American type of passenger car, with end doors and central aisle.

Union ; the first line to San Francisco was completed the following year.

The postal system was also improved and extended during this period ; in 1860 there were about 186,000 miles of postal roads in operation. As a result of improvements in the printing press — the cylinder press was first operated in 1847 — and in the manufacture of paper, the number of newspapers had greatly increased. At the end of this period there were nearly 400 daily newspapers issued in the United States and no less than 3266 daily, weekly, bi-weekly, and monthly papers, aggregating some 10,000,000 copies. In 1850 the rate of postage on a prepaid letter was reduced to three cents for any distance under 3000 miles. The effect of these improved systems of communication on the thought and development of the country was very great.

SUGGESTIVE TOPICS AND QUESTIONS

1. In what way did the tariffs of 1824, 1828, etc., increase the cost of shipbuilding ? [F. W. Taussig, *Tariff History*, 76, 90, 93, F. W. Taussig, *State Papers*, 317-385 (Webster's speech), D. R. Dewey, 173-183.]

2. Describe a voyage to California in a sailing clipper. [R. H. Dana, *Two Years before the Mast*.]

3. Tell all about a clipper ship and a specimen voyage to, say, China or Australia. [W. L. Marvin, *American Merchant Marine*, 253 ; E. R. Johnson, *Ocean and Inland Water Transportation*, 20.]

4. What was the substance of the shipping acts providing for "reciprocal liberty of commerce" ? Do you consider that they were advantageous to the American merchant marine ? [W. Bates, *American Navy*, chap. 8 ; Marvin, chap. 9.]

5. Why did England turn so readily to the construction of iron ships and the United States so slowly ?

6. Why was the use of steam as sole motive power delayed so long for ocean voyages after its use on rivers and along the coast ?

7. Did the subsidy policy succeed in 1854 ? Would it be desirable to introduce this system now ? [K. Coman, *Industrial History of the United States*, 230-232 ; Marvin, chaps. 12, 18.]

8. What were the principal shipping ports before the Civil War ? Draw a map of the United States and indicate these ports.

9. What were the causes which led to the expansion of our foreign

commerce after 1846? [W. C. Webster, *General History of Commerce*, 361; Taussig, *Tariff History*, 116-122.]

10. What were the principal exports and imports of the United States during this period? [T. Pitkin, *Statistical View*, chaps. 3, 6; United States Treasury Reports.]

11. What changes were taking place in the produce that went down the Mississippi to New Orleans? What were the reasons? [Internal Commerce, Treasury Report, 1887, 209.]

12. What effects did the railroads have upon the development of the West? [J. G. Thompson, *The Rise and Decline of the Wheat-growing Industry in Wisconsin*.]

13. Describe the experience of some State in its early dealings with railroads. [J. W. Million, *State Aid to Railways*, 1-26.]

14. Describe the invention of the telegraph and the difficulties in its early application. [E. Bryn, *Progress of Invention*, chap. 3, N. Sargent, *Public Men and Events*, II, 193.]

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Laing, Alexander, *The Sea Witch*. A vivid story of the greatest clipper ship. 1850.

CHAPTER XVI

CURRENCY AND BANKING

The currency problem of a new country is always concerned with how it may most economically provide itself with the necessary media of exchange, and to this several answers were given in the United States during this period. In this process other questions, such as the relation of the government to banks, the custody of its funds, coinage, and related matters had also to be settled.

State banks.— Upon the expiration of the charter of the First Bank of the United States in 1811 State banks increased greatly in number — 120 new banks being chartered and put into operation in the three following years — and undertook to furnish the country with bank-notes and credit currency. The dissolution of the First Bank of the United States caused the export of \$7,000,000 in specie which had been invested by Europeans in its stock. There was thus a vacuum in the currency of the country which needed to be filled, and this the State banks proceeded to supply. They did not, however, limit themselves to the normal needs of trade, but issued their notes in excessive quantities. The demand for capital was strong, and this was furnished the mercantile community by the banks in the form of bank-notes; the loose credit system of selling public lands in the West led to demands for loans in that section; and the disorganization and needs of the War of 1812 were additional factors leading to expansion, especially since after the suspension of specie payments in 1814 the government accepted State bank-notes in payment of public dues. Add to all this the fact that there was as yet no widespread system of publicity or of knowledge as to the condition of banks or the state of the currency, and it can scarcely be a matter of wonder that the currency was inflated.

Between 1812 and 1817 the number of banks trebled and the bank-note circulation increased from \$45,000,000 to \$100,000,000. Most of this increase took place in the West ; the older and more developed sections of the country had already learned some of the principles of good banking and were putting them into practice. But so insufficient was the specie reserve held by the banks to withstand any special shock, that when Washington was captured by the British in 1814 all the banks, except those in New England, were forced to suspend specie payments. The country was again upon a paper money basis, differing only from that of the Continental currency in that it was now issued by banks instead of by the government. All the old evils appeared, of over-issue, depreciation, and inequality in value. The notes of the New York banks were 10 per cent below par, those of Washington and Baltimore 22 per cent, while in the West some of them fell as low as 50 per cent below par. But, bad as it was, the people were compelled to use this depreciated and fluctuating currency, since there was no other to take its place.

Second Bank of the United States.—At this juncture the Second Bank of the United States was established. Two reasons were advanced for its organization at this time (1816) : in the first place it would afford assistance to the treasury, which was financially embarrassed on account of the war ; and secondly, it would act as a regulator of the currency. The Bank was chartered in 1816 for twenty years, with a capital of \$35,000,000 of which one-fifth was subscribed by the Federal government. The circulation was limited to the amount of the capital, and notes were made payable in specie on demand and were receivable in all payments to the United States. It was expected that the circulating notes of the Bank, being redeemable in specie on demand, would compel the State banks to resume specie payments or would drive the depreciated local bank-notes out of circulation.

Unfortunately, however, the Bank itself was very badly

managed for the first three years of its existence : only a part of the specie reserve was paid in, the notes were over-issued, and loans made on insufficient security. It consequently contributed to the evils of speculation and reckless banking which characterized this period, instead of reforming them. In 1819 the Bank was almost bankrupt, and was saved from ruin only by the appointment of a new president and a thorough reorganization. A severe contraction of circulation and loans followed, but while this saved the Bank, it could not avert the financial storm which had been brewing during years of speculation.

This broke in the crisis of 1819, which was the first general crisis in the United States. Its causes were complex, and bad banking formed only one. In addition may be mentioned the speculation in Western lands, the rapid commercial expansion, and the unstable position of the manufacturing industries which had grown abnormally during the embargo and the war and had afterwards been exposed to foreign competition. At the same time the State banks contracted their note circulation from \$100,000,000 in 1817 to \$45,000,000 in 1819, and thus reduced the credit facilities at the very time they were most in demand. Specie payments were again generally suspended, prices fell disastrously, failures occurred in every part of the country, industries stopped, and many laborers were thrown out of work. A period of readjustment ensued, which continued in some parts of the country for three or four years.

End of the Bank.—The career of the Bank during the next few years was uneventful. It increased its circulation, and as these notes passed at par, the State banks were compelled, on pain of having their notes refused, to limit their issues and maintain specie payments. The Bank brought pressure upon the state institutions by steadily presenting to them for redemption all their bank-notes which came into its possession, and it thus acted as a “regulator of the currency.” But this fact made it very unpopular in the South and the West, where its influence was most felt and where

public opinion did not support such action. Several of the States attempted to tax the branches that were established within their borders, but from this they were debarred by the adverse decisions of Chief-Justice Marshall in *McCulloch v. Maryland* (1819) and *Osborn v. United States Bank* (1824). While the Bank was thus an object of dislike in parts of the country there seems to be no evidence to show that it was badly managed.

Opposition to the Bank was, however, brought to a head by President Jackson, who was strongly opposed to a central bank, which he regarded as a dangerous monopoly. The unseasonable political activity of the Bank but confirmed this view in the mind of one by whom political opponents were regarded as enemies of the commonwealth. There were many persons also who were opposed to all bank-note issues, as they desired to see specie in circulation. The question of rechartering the Bank was made an issue in the presidential election of 1832, and since this resulted overwhelmingly in favor of Jackson, the Bank was refused a recharter and its affairs were wound up. This brought to an end the policy of providing the credit paper currency of the country by means of a great central bank. In its place came the policy of permitting the State banks to furnish the necessary credit money, and of having the government keep its own funds and make use only of specie, which, however, was not put into practice for some years. In this way the use of a large amount of coin in the country would be enforced and the undue expansion of bank-note issues would be restricted.

Inflation of the currency.— With the withdrawal of the United States Bank the way was open again for an expansion of their circulation by the State banks, and these quickly availed themselves of the opportunity. The speculative enthusiasm of the times, the internal improvements by the States, and the investments in Western lands created a great demand for capital and credit, and many local banks were hastily organized to secure the enormous profits that seemed promised. This expansion was in part made possible by

the deposit of the government funds in selected "pet" banks, after their withdrawal from the Bank of the United States. The active speculation in the public lands especially led to the expansion of bank credit for the purpose of financing these investments. As the government price was fixed and the market price frequently rose far beyond this, there was active competition on the part of speculators to borrow from the banks. These granted loans readily on the security of government land, and borrowers used these loans to purchase their land from the land agents. The purchase money was often redeposited in the same bank, where it again served as the basis of another loan for the purchase of more land. From an average of less than \$2,000,000 a year before 1830 the receipts to the Federal government from the sale of public lands rose to \$25,000,000 in 1836. This vast speculation in the public lands could not have been financed without a corresponding inflation of their loans and circulation on the part of the banks. How far this proceeded is clearly indicated in the following table :

EXPANSION OF BANK CREDIT, 1829-1843 (IN MILLIONS OF DOLLARS)					
Year	No of Banks	Capital	Loans	Circulation	Specie
1829	329	110 1	137.0	48 2	14.9
1834	506	200 0	324 1	94 8	
1836	713	251 9	457 5	140 3	44 0*
1837	788	290 8	525 1	149 2	38 0
1843	691	228 9	254.5	58 6	33.5

* 1835.

The panic of 1837.—This mad dance of speculation was brought to an abrupt close by the panic of 1837. The causes of this widespread crisis were numerous and complicated, but at the bottom it was a result of undue business expansion with accompanying extension of credit and speculation. Many factors contributed to this expansion, such as the prevalence of international peace, the foreign demand for our cotton

and other agricultural products, the building of internal improvements which opened up rich prairie land to cultivation and to markets, the distribution by the Federal government of the surplus revenue of 1836, and the widespread land speculation. It was a period when men's imaginations were stirred, and the prospects of the future were mortgaged to a reckless extent.

The immediate cause of the crisis was the so-called specie circular of the Treasury Department of July 11, 1836; this was an order to the government agents for the sale of public lands, that they should thereafter take in payment only specie; the notes of specie paying banks, if signed by the Treasurer of the United States, would also be accepted. This placed a check upon land speculation and cramped the operations of the Western banks, whose situation was made more serious by the failure of American crops in 1835 and 1837. The failure of important business houses in England at the end of 1836 caused a lessening in the demand for cotton; the high prices declined and Southern planters and banks were involved in the crash of the prevailing credit system. To this may possibly be added the reduction in the tariff, which had been going on since 1833, and which injuriously affected the manufacturers of the East. On May 10, 1837, the banks of New York City suspended specie payments; within two months 250 bankruptcies occurred. The value of real estate depreciated more than \$40,000,000 in six months. A period of liquidation and readjustment ensued, which was followed by a severe depression lasting five or six years. The bank-note circulation was rapidly contracted from \$149,000,000 in 1837 to \$58,000,000 in 1843, while the sales of public land steadily fell off from the high-water mark of 20,000,000 acres in 1836 until they reached about 1,000,000 acres in 1841.

The coinage acts of 1834 and 1837.—Little gold or silver was as yet mined in the United States, and the excessive issue of bank-notes had prevented the accumulation of any large stock of specie in the country. Coins were nevertheless

always to be found in the commercial centers of the country. They consisted for the most part of a heterogeneous collection of foreign coins, often clipped and mutilated. Spanish dollars and subdivisions thereof formed the bulk of the metallic money. No American silver dollars were coined from 1806 to 1836, and gold had disappeared from circulation under the ratio of 1792, which undervalued it. Gold had recently been discovered in North Carolina and Georgia in sufficient quantity to make it appear likely that the domestic monetary needs of the people might be supplied from this source.

By the acts of 1834 and 1837 the ratio between gold and silver was changed from fifteen to one to sixteen to one ; that is, the weight of the gold dollar was reduced from 24.75 grains to 23.22 grains fine gold, the weight of the silver dollar remaining the same (371.25 fine silver). As this slightly over-valued gold, it came rapidly into circulation again in place of silver, and silver coins began to disappear. The lack of subsidiary silver was a serious disadvantage in retail trade, and doubtless contributed to the demand for a larger supply of bank-notes. In the circumstances some form of paper money would seem to have been unavoidable.

After 1840 the silver dollar was rarely seen in circulation, and after the gold discoveries of 1848 even the fractional coins disappeared. When the smaller coins were withdrawn the inconvenience became so great that Congress passed the law of 1853, debasing the fractional coins in order to keep them in circulation by decreasing the amount of pure silver in each. Up to this time the half dollars, quarters, and dimes had contained exact fractions of the amount of silver in a silver dollar; the same causes that led to the withdrawal of silver dollars from circulation removed also the fractional silver. The act of 1853 sought to remedy this by reducing the amount of silver in the fractional coins and making them mere token money. Accordingly the smaller coins remained in circulation, though silver dollars practically disappeared



From a Currier and Ives print

GOLD MINING IN CALIFORNIA IN THE EARLY DAYS

The methods used in recovering the gold were at first extremely crude. The gold-bearing earth was shoveled into a sluice and the running water carried it over a riffle, where the heavy gold was deposited; or the miner simply washed the ore out in a pan and recovered the gold.

from use. Gold coins of course became general, especially after the gold discoveries.

Discovery of gold in California.—In January, 1848, James Marshall, while building a mill for John A. Sutter in Eldorado County, noticed shining particles of gold in the mill race. When this discovery was followed up, rich deposits of gold were found in the neighboring region. Immediately the news spread to the surrounding settlements, and more gradually to the East and to Europe. A great migration of gold hunters set in; around Cape Horn, across the Isthmus of Panama, and over the Western plains by wagon, they thronged to the gold fields. By the end of 1849 more than 80,000 immigrants—the “forty-niners”—were settled in California. The first and most important

result of this discovery was an enormous increase in the production of gold : in 1850 California produced \$36,000,000, which was equal to the annual average production of the whole world during the previous decade. In 1851 the production reached \$56,000,000, and in the same year gold was discovered also in Australia. As a result of these discoveries there was a large addition to the world's supply of specie, thus raising the general level of prices ; immigration was greatly stimulated, the far West was more rapidly settled, and the construction of a transcontinental railroad was hastened.

The independent treasury system.—After the end of the United States Bank in 1836 the government for some years deposited its funds in selected State banks ; but in so doing it was exposed to all the dangers and inconveniences connected with an inadequately regulated system of banking. It therefore instituted the plan of caring for its own funds, temporarily in 1840 and permanently in 1846, by means of the so-called independent or sub-treasury system. According to this the government was to separate itself completely from the banks, and was neither to establish a central bank nor to make use of the State banks. It would not use them as fiscal agents nor deposit government revenues with them ; nor would it receive bank-notes in payments to itself. The government was to establish sub-treasuries, which should collect all the revenue in specie, and make all disbursements in cash through its own officials.

By using specie exclusively it would ensure the presence of a large amount of coin in the country and would lessen the demand for bank-notes. At the same time it was expected that the banks, since they would no longer receive government deposits, would not be able to expand their circulation so greatly as they had done. This hard money policy of the government would thus effectively hold the banks in check and act as a regulator of the currency. An official investigation of the independent treasury system made in 1855 stated that both these results had been secured, and also that it

prevented losses to the government and gave to the treasury better control of its funds. Down to the period of the Civil War it proved safe, economical, and effective.

Banking, 1837-1860.— After the panic of 1837 and the resulting depression, the number of banks and their business, as indicated by their loans and discounts, remained fairly steady for a decade. After 1853 another period of expansion and speculation set in which led to a rapid extension of circulation and of loans while the ratio of specie reserve to notes increased but slightly. The rapid expansion is indicated in the following table :

BANKING EXPANSION, 1843-1860 (IN MILLIONS OF DOLLARS)					
Year	No. of Banks	Capital	Loans	Circulation	Specie
1847	715	203 1	310 3	105 5	35.1
1853	750	207 9	408 9	146.1	47.1
1857	1416	370.8	684 5	214.8	58.3
1860	1562	421 9	691.9	207.1	83 6

The stability and soundness of the banks differed greatly in different parts of the country. In Massachusetts and New England generally, sound banking methods were gradually developed, but in Western States the losses by bad banking were still very great and extraordinary looseness in legislation and administration prevailed. Perhaps the most serious practical defect was the depreciation and lack of uniformity of note issues, which resulted in great confusion in the currency. "A country merchant," says Dewey, "might receive and pay out a thousand kinds of notes, some good, some doubtful, some presumably bad, and this condition grew worse as the circle of business activity was enlarged with the construction of railroads." At one time as many as 5400 different kinds of spurious or counterfeit notes were recorded as being in circulation, and every merchant was compelled to keep at his elbow a Bank-Note Reporter or a Counterfeit

Detector. By 1863, most of these early evils were brought to an end.

The panic of 1857.— Our third crisis was primarily financial, and affected the financial institutions and centers of the country. It was, however, a result of industrial causes, such as the over-investment of fixed capital in the extraordinarily rapid construction of railroads — more than \$1,250,000,000 was invested in railroads between 1830 and 1860 — to the opening up of the West, and to the development of our mineral resources in Pennsylvania and elsewhere. Some writers have claimed, with less reason, that the tariff of 1857, enacted a few months before, was partly responsible for the crisis. Much more important was the stimulus of rising prices occasioned by the enormous additions to the gold supply from California and Australia. In fact the whole period of the westward movement, from 1815 to 1860, was one of restless endeavor and of speculative enterprise. When not held in check it sought an outlet through the channels of credit and led to banking excesses; even disaster could restrain it for only a brief period. Now that the additions to the metallic currency of the country were so large and industrially so stimulating, it was inevitable that speculative activity should be carried to an extreme.

In August, 1857, the Ohio Life Insurance and Trust Company, which had five million dollars tied up in railroad loans, and whose New York agent had defaulted, failed with large liabilities to Eastern institutions. A panic followed in New York City, and most of the banks were forced to suspend specie payments. Many of the Western railroads went into bankruptcy, as did numerous other speculative enterprises. In 1857 there were almost 5000 failures. The country quickly recovered from the effects of this panic, however, and by the end of the decade showed no trace of its effects.

SUGGESTIVE TOPICS AND QUESTIONS

1. Why was the First United States Bank refused a re-charter? [H. White, *Money and Banking*, 258; K. Coman, *Industrial History of the United States*, 154.]
2. What services did the First and Second Banks of the United States perform for the government? [Conant, *Modern Banks of Issue*, 340-357, Catterall, *Second Bank of the United States*.]
3. Why was the Second United States Bank refused a re-charter? [White, *Money and Banking*, 291-314; Coman, 193-197; Dewey, *Financial History of United States*, 198-203.]
4. Would there be any objection today to the establishment of another central bank like the Second Bank of the United States?
5. Why were there no silver dollars coined between 1806 and 1836? [Sumner, *American Currency*, 103-113; D. K. Watson, *History of American Coinage*, 73-77.]
6. Why was the ratio of silver to gold changed in 1834? [Watson, *History of American Coinage*, chap. 5; Dewey, 210-212.]
7. What were the methods of a wild-cat bank in the fifties? [White, *Money and Banking*, chap. 12; D. Kinley, *Independent Treasury of the United States*.]
8. When the settlers in a new country clamor for "more money" what is it that they really want? [F. A. Walker, *Money, Trade, and Industry*, 82; A. Smith, *Wealth of Nations*, Book 4, chap. 1.]
9. What is the effect on prices of a large addition to the money supply of a country? [Any text on economics; see Index, "Money."]
10. Describe the discovery of gold in California in 1848, and its effects. [J. D. B. Stillman, *Seeking the Golden Fleece*; T. Taylor, *El Dorado*.]
11. Compare the panics of 1819 and 1837. [Conant, *Modern Banks of Issue*, 624-628; Turner, *Rise of the New West*, chap. 9.]
12. What caused the panic of 1857? [Coman, 242-243; C. D. Wright, *Industrial Depressions*, 56-60; Dewey, 259-264.]
13. Did the westward movement lead to speculation? [T. Flint, *Recollections*, 198-207; T. Flint, *Letters*, 64-82; F. J. Turner, *Rise of the New West*, chaps. 5-7.]

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CHAPTER XVII

POPULATION AND LABOR

The labor problem of this period consisted in defining its nature, in determining the rights of labor, and in experiments at realizing some rather visionary ideals. The country still needed workers and the period was one of transition.

Growth of the population.— During the first half of the nineteenth century the population of the United States grew steadily and rapidly, increasing each decade about thirty-four per cent, which is equal to a doubling of the population every twenty-five years. From 3,930,000 in 1790 it grew to 17,000,000 in 1840, and 31,000,000 in 1860. Most of this increase was due to the natural excess of births over deaths, since the additions through immigration were not yet important.

The increase in population was widely distributed, but the West showed the most marked growth and the North grew more rapidly than the South. The westward movement was the most significant phenomenon of this period and was filling the Western States with farmers and home-owners. As yet but a small fraction of the people lived in cities, and no one of these was very large. New York City in 1830 contained fewer than 200,000 persons, and in 1840 only a little more than 300,000. Not only were the cities small, but the interests of the people were still predominantly rural and agricultural. In 1800 only 3.9 per cent, and in 1840 only 8.5 per cent, of the total population of the United States lived in cities of over 8000 inhabitants. Still, the movement toward the city may be said to have begun in the decade 1820-30, when it first became perceptible.

Population and immigration.—Between 1840 and 1860 the population increased rapidly through natural causes, doubling about once in twenty-five years. At the same time the country was receiving enormous additions to the labor force through immigration. It has been estimated that about 160,000 immigrants came to this country between 1800 and 1820. From 1820, when statistics of immigration first began to be gathered, until 1840, the number of aliens was 750,949. During the twenties immigration was small, but beginning with 1832 it increased rapidly, and by 1840 had reached 84,066 for the year. But small as it was, it proved a disturbing element in the industrial development of the period. Most of these early immigrants were English and Irish. The latter furnished the unskilled labor for the construction of works of internal improvement. Many of the English were paupers who were furnished passage to this country by the parish authorities; but under the existing English poor law this did not necessarily indicate inefficiency or disgrace.

The potato famine in Ireland in 1846, the political disturbances in Europe in 1848, and finally the gold discoveries in California in the same year, brought thousands of immigrants to this country. The first great wave of immigration took place in the decade following 1845, and consisted largely of Irish, Germans, English, and French. The Irish settled for the most part in the Eastern cities, while the Germans and the English took up farms in the central States. The colonizing movement of the far West was effected chiefly by those of native birth, who gave place to the newcomers in the Eastern and the central States and pushed on to the frontier. The annual arrivals of foreign-born jumped from 84,000 in 1840 to 234,968 in 1847, and to 427,833 in 1854, a figure that was equaled only once in the next twenty-five years. The number of persons of foreign birth living in the United States was 2,240,535 in 1850, and 4,131,866 ten years later. Such a large infusion

of foreign blood quickened the movement of the population and developed habits of change and enterprise.

The growth of the industrial city.—The movement of the population to the cities, which was first perceptible in the twenties, became marked after 1840. In that year there were 44 cities in the United States with a population of 8000 or more, but by 1860 the number had grown to 141. The percentage of the population living under these urban conditions increased from 8.5 in 1840 to 16 in 1860. Then, as now, the chief causes of this urban concentration were the improvements in the means of transportation and the increasing use of machinery. Population was massed in the growing factory towns in order to supply the needed labor for the expanding manufactures, while the Western prairie and Southern cotton fields furnished the necessary food and raw materials. The manufacturing towns of New England grew the fastest, and places like Lowell, which were unheard of in 1830, had grown to be flourishing cities in 1860. New York City grew during the twenty-year period 1840-60 from 300,000 to 800,000.

As a result of this rapid increase of urban population there arose problems of housing, of over-crowding, insanitary conditions, cellar dwellings, and high rents, which were gradually corrected by new building. Most of this industrial development occurred in the North, where there were four times as many towns of over 8000 inhabitants as in the South. Such cities as had grown up in the South of the country were less industrial than commercial, and depended for their prosperity upon the cotton, tobacco, and sugar trade rather than upon textile or iron manufacturing. Cotton presses and warehouses, not factories and foundries, filled the business sections and gave employment to labor. In the decade 1850-60 the movement to the cities slackened perceptibly, because of the gold discoveries and the rush to the far West. Not until 1880 did the drift cityward proceed again as rapidly as it had between 1840 and 1850.

The following table shows the growth of the population and its distribution from 1790 to 1860 :

THE POPULATION OF THE UNITED STATES, 1790-1860						
Year	White	Colored	Total	Immigration during decade ending with year	Percentage of growth of population during decade ending with year	Percentage of total in towns of 8000 inhabitants or over
1790	3,172,006	757,208	3,929,214	about 200,000	.	3 35
1800	4,306,446	1,002,037	5,308,483		35.1	3 97
1810	5,862,083	1,377,808	7,239,891		36.4	4 93
1820	7,862,166	1,771,656	9,633,822		33.1	4.93
1830	10,537,378	2,328,642	12,866,020	143,439	33.5	6.72
1840	14,195,805	2,873,648	17,059,453	599,125	32.7	8.52
1850	19,553,068	3,638,808	23,191,876	1,713,251	35.9	12.49
1860	26,991,491	4,441,830	31,443,321	2,598,214	35.6	16.13

Industrial organization.—Although a beginning had been made in the introduction of the factory system, it had not yet developed so far as to bring about a clear-cut separation of classes into employer and employee. Down to the twenties industry was still organized essentially as it had been during the colonial period. The master worked side by side with his journeymen and apprentices, and was not sharply differentiated from them by either his earnings or social position. Hand tools were still in general use and goods were usually made to the order of the customer. Conflicts over wages or hours were consequently infrequent during this period. This stage of industrial organization was completely altered about 1820 by the extension of markets in the United States, as a result of the growth of the population and improved transportation facilities ; the invention and the introduction of machinery had, according to a leading authority, only a secondary effect and followed rather than preceded the widening of the markets.

With the extension of waterways, highways, railroads, and banking facilities, there developed a new class of merchant-capitalists or merchant-manufacturers, who took over the

wholesale business now made possible by the wider markets. In these distant markets the merchant-manufacturer sought orders for goods to be made and delivered later. But here the competition from other centers of manufacture, also seeking orders, forced the merchant-manufacturer, now become a wholesaler, to offer his goods at as low a price as possible. The attempt of employers in this wholesale-order stage to reduce wages so that they could meet distant competition was the beginning of the conflict between capital and labor.

The former master mechanic was also pinched down in this process ; he became merely the boss or employer of labor, and sold his product to the wholesaler instead of to his customers ; he no longer owned even the raw materials which he worked up. His profits now depended upon his skill in organizing and directing labor rather than in the sale of his product. The journeyman consequently found himself exposed to new forces of competition and his wages and standard of living threatened : prison labor, sweatshops, home work, and distant localities all tended to force down the rate of wages. Against these conditions labor first began to organize.

Early labor organizations.—The period from 1820 to 1840 is called by Professor Commons "the awakening period of the American labor movement." There had been organizations of labor before this, with occasional strikes and several trials for conspiracy, but the real labor movement did not begin until 1827, when the "Mechanics Union of Trade Associations" was organized in Philadelphia. This was only temporary, however, and the first important national trades union was organized in 1834 ; it was a union of different trades for a common object and brought together delegates from widely separated sections of the country. National conventions were held for three years before it finally disappeared with the panic of 1837.

The early labor movement in the United States did not spring from factory conditions ; indeed the factory system

was at that time almost entirely outside the labor movement, since most of the early factory workers were women and children and the factories were as yet confined to the cotton industry. It arose rather as a protest against the merchant-capitalist system, which was reducing the journeyman and the master-mechanic to a common level of wage dependency. The issues that were emphasized in the trades-union period of the thirties were "hours of labor, wages, prices, paper money, public employment, factory legislation and the competition of women, prison competition, and freedom of the public lands."¹

The long hours of labor and overwork first demanded attention. Against the farmer's "sun to sun" the city mechanic raised the standard "six to six." Successful strikes in Philadelphia in 1835 initiated a movement that culminated in President Van Buren's famous ten-hour order in 1840 for all public establishments. High prices increased the cost of living and made the position of the wage-earner increasingly difficult ; consequently the workingmen in 1835 favored hard money and opposed bank inflation, which was sending prices up to unheard-of heights. For instance, wheat flour in New York, which cost \$5 a barrel in 1834, had risen to \$12 in March, 1837 ; and all the necessities of life rose in similar proportion. The workingman also demanded that the public lands, which were largely in the hands of speculators, should be secured to the people, and thus afford an outlet to the oppressed wage-worker.

This early labor movement ended in 1837. The employers formed a counter-organization in New York and in 1830 secured the conviction of twenty striking tailors on a charge of conspiracy. The workingmen as a result of this went over to the Equal Rights Party and endeavored to obtain a redress of their grievances by means of political action. The panic of 1837 gave the final blow to a movement that was already disintegrating, and after this attention

¹ *Documentary History of American Industrial Society*, V, 33.

began to be given more to panaceas and legislation and less to labor organization.

Robert Owen.—The visit of Robert Owen to the United States in 1825 gave a rather fantastic turn to the humanitarian and labor movement of this period. Owen was the manager and part owner of a factory at New Lanark, Scotland, in which he had successfully introduced many reforms, such as the shortening of the working day, the prohibition of child labor, and the establishment of schools. He developed a far-reaching scheme of economic and social reform, and as he was unable to carry out all his plans at home he came over to this country to make further experiments, unhampered by opposition. He preached the doctrine of communism to the members of Congress and to audiences in all the principal cities. An attempt was made to carry out his plan in a communist society which he founded at New Harmony, Indiana. A tract of thirty thousand acres was purchased and an invitation extended to "the industrious and well-disposed of all nations" to join in founding a community in which the principles of human brotherhood and economic equality should govern. An incongruous crowd of some nine hundred persons responded to this appeal, but as no test of their qualifications or motives was made, many of them proved to be shiftless and inharmonious. Although Owen himself spent some \$200,000 in this experiment it proved a failure, and went to pieces after a precarious existence of about two years. Eight or ten other communities were organized on the same basis of communism and human brotherhood, but they were equally short-lived. But in spite of these practical failures, the influence of Owen's idealism survived, and later found expression in other socialistic utopias.

Industrial and economic changes.—The material development of this period, the spread of the factory system with its attendant growth of a distinct wage-earning class, and the improvement in the means of communication, had all served to break up the old economic levels and to intro-

duce active elements of change. Corporations began to take the place of individual enterprises, and the first beginnings of monopolies drew forth political and industrial protest, which found expression in the platforms of the labor party and in widespread labor agitation. On the whole, however, corporations were regarded favorably, and even indulgently, during this period. The great problem in relation to capital was how to secure the needed supplies and concentrate them under one management. As long as the chief industries had been agriculture and commerce, this problem had not presented any serious difficulties. But now that attention was being directed to banking, manufactures, and transportation, some means had to be devised for bringing together the necessary capital. The solution of the problem was found in the development of corporations, and this proceeded rapidly during this period. Not only were charters freely granted to banks and transportation companies, with few restrictions against possible evils, but manufacturing companies were incorporated on generous terms in the industrial States. "Nearly all the railroads and turnpike roads, and many of the canals," wrote Seaman in 1852, "numerous colleges, universities, lyceums, library associations . . . nearly all the great manufacturing establishments in the United States were established, and carried on by means of corporations."

Conditions in the factories.—The growth of industrial cities and of corporations betokens a corresponding development of factory industry. One of the most serious obstacles to the introduction of the factory system had been the lack of labor ; this had been mentioned by Hamilton and other writers. As inventions multiplied and factories grew this lack was met by the employment of women and children and later of immigrants. Miss Martineau believed "that there was much silent suffering from poverty before the institution of factories ; that they afford a most welcome resource to some thousands of young women, unwilling to give themselves to domestic service, and precluded, by the customs of the country, from rural labor." To attract this

form of labor to the factory towns, wholesome living conditions had to be assured, in addition to good wages ; these would average about \$3 a week. The conditions at Lowell, the most famous of these early factory towns, are described as follows by Chevalier, a French traveler, in 1836 :

The cotton manufacture alone employs six thousand persons in Lowell ; of this number nearly five thousand are young women from seventeen to twenty-four years of age, the daughters of farmers from the different New England States. . . The manufacturing companies exercise the most careful supervision over these girls. I have already said that, twelve years ago, Lowell did not exist , when, therefore, the manufactories were set up, it also became necessary to provide lodging for the operatives, and each company has built for this purpose a number of houses within its own limits, to be used exclusively as boarding houses for them. Here they are under the care of the mistress of the house, who is paid by the company at the rate of one dollar and a quarter a week for each boarder, that sum being stopped out of the weekly wages of the girls. The house-keepers, who are generally widows, are each responsible for the conduct of her boarders, and they are themselves subject to the control and supervision of the company, in the management of their little communities. Each company has its rules and regulations.

The rules thus alluded to required of the operatives industry, temperance, attendance at religious services, neatness, punctuality, and early hours. These were the conditions that obtained in 1840, but by 1860 the farmers' daughters had taken up other callings, their places were filled with immigrants, and the neat company houses had given place to factory tenements.

Fourierism.—The decade of the forties has been called the "hot air" period of American history — "the golden age of the talk-fest, the lyceum, the brotherhood of man." It was a period of philosophizing about human rights and of social and economic reforms along a great number of lines. Perhaps the most significant and far-reaching of these was Fourierism or Association, as it was more often called. Charles Fourier was a French writer, who before his death in 1837 elaborated a scheme of industrial organization on the basis of associated activity. Social harmony was the keynote

of his system : people should group themselves in congenial industrial associations called phalanxes, each of which should contain about 1500 persons. They should live in a great central building, in which labor should be carried on co-operatively ; each member should choose his occupation according to inclination, and vary it as soon as it became tiresome ; the less attractive kinds of work should be the best paid. According to this scheme labor was to be made both dignified and attractive, and, since everyone in the phalanx would work, he would also secure a larger reward than under the existing competitive régime.

This scheme of social reorganization was presented to the people of the United States by Albert Brisbane in a book published in 1840. A wave of socialism swept over the country. Immediate efforts were made to put these ideals into practice, and phalanxes or industrial groups were established by the dozen. Of these Brook Farm was the most famous ; it was organized on a farm near Boston, and numbered among its members such well-known men as Ripley, Channing, Greeley, and Wendell Phillips. All these experiments failed and gradually the Associationists began to pay more attention to particular remedies for particular evils, such as land reform and the organization of labor.

Labor organization after 1850.—The cause of labor had been almost submerged in the ambitious attempts at general social improvement. Philosophical, humanitarian, and political protest took the place of organization and strikes. After the failure of Fourierism had shown that the labor problem was not to be solved by socialism, the workingmen turned to co-operation ; but this movement had an even briefer history. For a period of four or five years beginning with 1847 experiments with co-operation were carried on by the iron moulders in Cincinnati, the tailors in Boston and New York, the puddlers of Pittsburgh, the printers of Philadelphia, and other industrial groups, but they all failed. Gradually there emerged out of this chaos of experiments and reforms a "pure and simple" trade-union movement

which Professor Commons dates from 1853. The efforts of the social reformers were diverted into the anti-slavery contest after 1852, and the workingmen were left to work out their own salvation. A new type of union was established, which steered clear of all programs of social and political reform and confined its activities to improving conditions in the trade. "Its main weapon was the strike ; its aim, to establish a minimum wage for the trade and to maintain it by means of a closed shop." Collective agreements were made between unions and employers, which fixed the wages, hours, and other conditions of employment. Labor organization was confined during this period to the formation of small local unions ; the first national union, that of the printers, was not established until after 1850. By the time of the Civil War it is estimated that only four trades had national organizations.

SUGGESTIVE TOPICS AND QUESTIONS

1. Describe Robert Owen's reforms in New Lanark, Scotland. [W. L. Sargent, *Robert Owen*, chap. 20 ; A. J. Booth, *Life of Owen* ; Robert Dale Owen, *Autobiography*, chap. 3.]

2. What communistic society was started by Robert Owen in this country ? Did it succeed ? Why ? [Booth, *Life of Owen* ; R. D. Owen, *Autobiography*, chaps. 8, 9 ; M. Hillquit, *History of Socialism in United States*, 58-64.]

3. What is communism ? What is socialism ? Is there any difference between these and anarchism ? [Encyclopedias.]

4. Describe the social doctrines of the French socialist Fourier. How far were they accepted in America ? [R. T. Ely, *French and German Socialism*, chap. 5 ; Hillquit, *History of Socialism in United States*, chap. 34]

5. Describe Brook Farm as a socialistic experiment. Why did it not succeed ? [Noyes, *History of American Socialisms*, chap. 2 ; J. T. Codman, *Brook Farm* ; L. Swift, *Brook Farm*.]

6. What part did Horace Greeley play in social reforms of this period, and how influential was he ? [Sotheran, *Horace Greeley*, 148-153.]

7. Describe the experiences of an immigrant to the United States about 1840-60. [J. R. Commons, *Races and Immigrants in America*.]

8. What revolutionary disturbances were there in Europe about 1848 ? [G. P. Fisher, *Universal History*, 564-570.]

9. Who was Dorothea Dix and what were her public services? [Encyclopedias.]

10. Give an account of the life of the operatives at a model factory town like Lowell, in the thirties. [H. Martineau, *Society in America*, II, 53-60; G. S. Callender, *Selections from the Economic History of the United States*, 701-708.]

11. How has the introduction of machinery changed the relations of workman to master? [J. A. Hobson, *Evolution of Modern Capitalism*, 34-43]

12. Are the opportunities for employees to rise to the rank of employers as great today as they were 75 to 100 years ago?

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CHAPTER XVIII

AGRICULTURE

The land problem, in its governmental aspect, was how to get the public lands into the hands of settlers ; in its social aspect, it was how to utilize the land so as to produce the largest returns. The response of the American farmer to this latter problem was prompt and may be read in the agricultural development of this period.

Extension of farm area.— The settlement of the fertile country about the Great Lakes proceeded rapidly after the construction of the Erie and other canals had provided an outlet to the Atlantic ports for Western produce. Between 1820 and 1840 the population of Ohio increased from 581,295 to 1,519,467 ; that of Indiana from 147,178 to 685,866 ; of Illinois, from 55,211 to 476,183 ; and of Michigan, from 8896 to 212,267. This growth in the population denotes a corresponding extension in the cultivated farm area, though statistics showing this were not yet gathered for the census. While some of those who joined in the westward movement took up land for speculative purposes, the majority had the distinct purpose of becoming farmers. During this period the tide of settlement pushed out beyond the forest belt, which clothed the whole Eastern section as far as Ohio and which made the task of the settler in that region so laborious, and reached the treeless prairies of the West. The cost of preparing the soil for cultivation here was certainly less than half what it had been in those sections where the forest had first to be cleared away. "Here," wrote an English traveler, Stirling, "the pioneer is not the backwoodsman, with his axe, but the 'prairie-breaker' with his team and plough." Yet there were certain



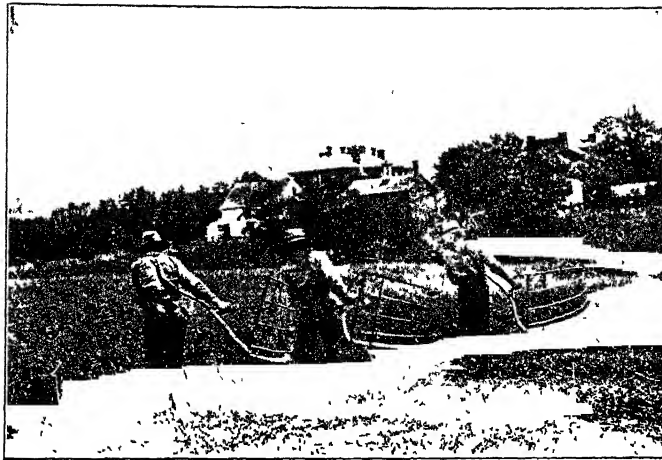
HORSE RAKE, 1818

"After the crop is cut, the swath is collected by the hand and tied into sheaves; a small quantity of stalks still remain scattered over the surface; these are commonly collected by the hand rake. To facilitate the latter part of the process, a horse rake has been recently invented"—Flint's *Letters from America*, 1818.

obstacles to the rapid settlement of this open land : the scarcity of wood made it difficult to build houses or to secure fuel, while drinking water could be obtained only by digging wells from twenty to forty feet, and was not very good at that. The lack of navigable waterways, too, cut off the settlers on the prairie from access to markets, at least until the railway opened up this section. As a result the early pioneer was likely to lead an isolated and dreary existence, which was aggravated by the unhealthfulness of the region.

The population of the Southern slave States also increased from 1,200,484 in 1820 to 2,659,085 in 1840, although most of the increase took place in the new Southwest rather than in the old South. The cotton and the sugar plantations of the South showed an increase in size after 1840 ; here alone, with the exception of California, was to be found any considerable number of farms of over 1000 acres. The total values produced on the farms at each decennial date was estimated at \$580,000,000 in 1840, \$800,000,000 in 1850, and \$1,250,000,000 in 1860. In spite of the rapid progress in manufactures and commerce, the country still remained predominantly agricultural, more than 40 per cent of the population being dependent upon agriculture.

Improvements in farm implements.—As late as 1830 practically every part of the work of the farm, says Professor Carver, except plowing, harrowing, and drawing loads, was

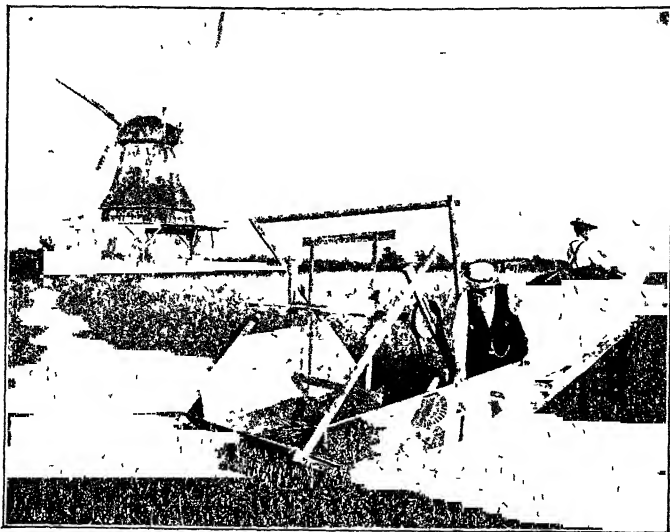


HARVESTING WITH CRADLES

In most parts of America the crops were mowed at this time by the cradle scythe. This was a frame of wood with a row of long curved ribs projecting above and parallel to a broad scythe-blade, for cutting grains and laying them in a straight swath. The cradle acted as a gathering rake and deposited the grain in an even pile with every swing of the scythe. It was invented in 1803 and constituted at the time a greater improvement over existing methods than did the reaper thirty years later over the cradle.

done by hand, that is, with tools that were directed and driven by human muscles. "Small grain was sown broadcast, reaped with a cradle (which was a relatively new invention), and threshed with a flail, or trodden out by horses and oxen. Hay was mown with a scythe, and raked and pitched by hand. Corn was planted and covered by hand, and cultivated mainly with a hoe." With a cradle and a hand rake a man could cut and rake about two acres a day, working under much greater fatigue than a modern farmer endures.

By 1860 the farming industry had experienced a revolution in practically every one of these processes by the invention and the introduction of farm machinery whose motive power was non-human. No period of equal length in the history of agriculture has witnessed such revolutionary changes.



FIRST MCCORMICK REAPER, 1831

The first reaper, built by Cyrus H. McCormick, of Virginia, was made at a blacksmith's shop in the Shenandoah valley. These reapers enabled one man with a team of horses to cut as much grain as four men with cradle scythes. McCormick did not take out his first patent until 1834.

Of far-reaching influence on the extension of cereal production throughout the flat prairie regions of the central West was the invention of various mechanical devices for plowing, cultivating, mowing, reaping, and threshing the crops. The cast-iron plow was in general use by 1825. During the next decade the use of threshing machines spread with great rapidity, and by 1840 comparatively little grain was threshed in any other way. Improvements continued to be invented: up to 1860 the number of patents — 354 — granted for threshing machines was larger than had been issued for any other instrument except the plow and the water-wheel, and perhaps grain harvesters and corn-planters. At first the machine merely threshed, but about 1850 separators were added, which separated the grain from the chaff and straw. By 1860 steam-threshers had been introduced, but horse power was still generally used.

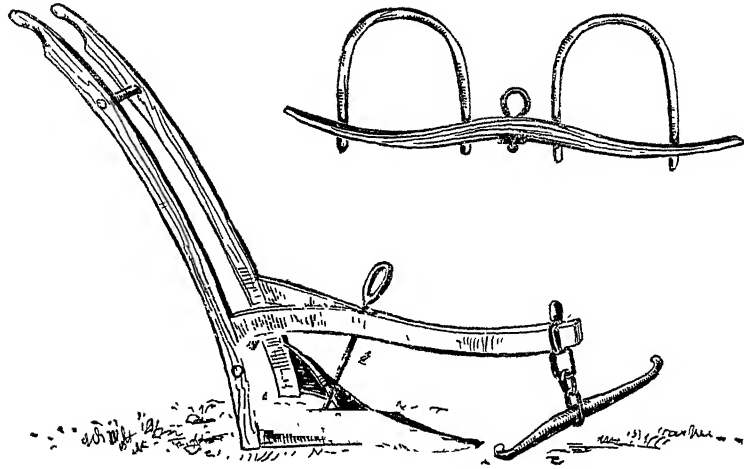
The first patent for a mowing machine was granted to William Manning, of New Jersey, in 1831, and for a reaping machine to Obed Hussey, of Baltimore, in 1833, which cut grain as fast as eight persons could bind it. In 1834 a patent was issued to Cyrus H. McCormick for an improved reaping machine for cutting grains of all kinds. The prototype of the revolving hay-rake was invented in 1824 and perfected about 1856. Only limited success attended the early introduction of these machines, and it was not until after 1840 that they exerted their transforming influence on Western agriculture.

The common use of the reaper dates from about 1845, and the mower a decade later. It was given a great impetus by the success of American machines at the World's Fair in London in 1851 and at an exhibition near Paris four years later. "The triumph of the American reapers," said the official report at London, "marked a new era in agriculture." At the Paris exhibition a trial of mowing, reaping, and threshing machines was made, and of the results a correspondent of the New York *Tribune* wrote : "Six men were set to threshing with flails at the same moment that the different machines commenced operations, and the following were the results of an hour's work :

Six threshers with flails	. . . . .	36 liters of wheat
Belgian threshing machine	. . . . .	150 liters of wheat
French threshing machine	. . . . .	250 liters of wheat
English threshing machine	. . . . .	410 liters of wheat
American threshing machine	. . . . .	740 liters of wheat

In the trial of reapers the following was the result in a field of oats : a French machine cut an acre in 71 minutes ; an English machine in 66 minutes ; and an American in 22 minutes.

Other improvements.—The application of machinery to the work of harvesting marked an epoch in American agriculture ; there was now no practical limit to production through inability to gather the crop. But the use of ma-



Plow and Neck Yoke, 1832

"The plow is different in its construction from that used in Germany, and the oxen are attached to it by a very peculiar yoke, which consists of a long, thick, crooked piece of wood, which is laid horizontally over the necks of two oxen, with two bows underneath, through which the heads of the animals are put." *Travels in the Interior of North America*, by Maximilian, Prince of Wied, 1832.

chines in harvesting was supplemented, though in a lesser degree, by their application to the cultivation and tillage of the crop, particularly of Indian corn. A variety of cultivators, grubbers, horse hoes, seed-drills, and similar implements enabled the farmer to substitute animal power for hand culture. Of especial importance were the corn-planters and the horse cultivator, which came into use during this period. In a new country like the United States, where labor was still scarce and high, labor-saving machines were indispensable. The chief characteristics of the American machines were, as they still are, lightness, simplicity, and cheapness, in all of which qualities they far excelled those of England and Europe. By 1860 the total value of agricultural implements manufactured in the United States was \$17,802,514.

During this period, too, commercial fertilizers were intro-

duced into the United States, and the application of chemistry to agriculture, first reduced to a science by Liebig, was put into practice, though as yet to a very limited extent.

But great as was the progress in cultivating, harvesting, and cleaning the grain, it was still greater in grain transportation. The most remarkable progress was made during this period by the Western States (Ohio, Indiana, Illinois, Michigan, and Wisconsin). In these five States between 1850 and 1860 the number of miles of railroad grew from 1275 to 9616; the production of corn, oats, and cattle increased more than 50 per cent, and of wheat and potatoes 100 per cent. At the same time the cash value of the farms in these States almost trebled. The rivers and canals were quite inadequate to transport this increased production, which was made possible only by the rapid extension of railroads.

Benefits of farm machinery.—The saving effected by the use of these improved implements was estimated in the census of 1860 as equal to more than one-half the former cost of working. "By the improved plow, labor equivalent to that of one horse in three is saved. By means of drills two bushels of seed will go as far as three bushels scattered broadcast, while the yield is increased six to eight bushels per acre; the plants come up in rows and may be tended by horse-hoes. . . The reaping machine is a saving of more than one-third the labor when it cuts and rakes. . . The threshing machine is a saving of two-thirds on the old hand-flail mode. . . The saving in the labor of handling hay in the field and barn by means of horse-rakes and horse-hay-forks is equal to one-half." But the real gain to agriculture by the use of these machines cannot be measured merely by noting the increased area that can be cultivated by a given labor force, or the saving in labor cost. It consists rather in the saving of time, which permits a large crop to be harvested at the moment of maturity, without the loss by delay or exposure; that is, if grain is not harvested in about ten days it is lost, falls to the ground or is spoiled. The whole labor force of the United States in 1860 would probably have been

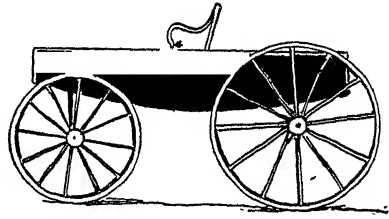
insufficient to have harvested in season the crops of that year by the methods of a generation previous.

The expansion that was taking place in agriculture during this period can best be seen in the following table. During the twenty-year period, 1840-1860, most of the products doubled in quantity, but cotton somewhat more than trebled, while oats and potatoes showed only about a 50 per cent growth. On the whole the expansion of agricultural production was more rapid than the growth either of the population or the means of transportation; it measured fairly well the development of wealth.

PRINCIPAL AGRICULTURAL PRODUCTS, 1840-1860			
PRODUCT (IN MILLIONS)	1840	1850	1860
Improved farm land, acres . . . . .	.. .	113.0	163.1
Corn, bushels.	377 5	592.0	838.8
Wheat, bushels.	84 8	100.4	173.1
Oats, bushels	123 0	146.5	172.6
Potatoes, bushels	104 2	104.0	153.2
Hay, tons	10.2	13.8	19.0
Butter, lbs. . . . .	.....	313.3	459.6
Wool, lbs.	35.8	52 5	60.2
Cotton, lbs.	600.0	960.0	2120.0
Tobacco, lbs.	219.1	199.7	434 2
Rice, lbs.	80.8	215 3	187.1

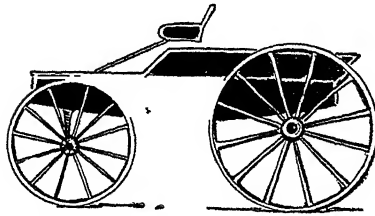
Cereal production.— With the extension of the cultivated area the production of the cereals increased enormously; most of it, however, found a market in the growing Southwest, and the lake grain trade did not begin to expand until the end of this period. As corn could not pay the cost of transportation very well, it was converted into whisky or hogs, and sold in the form of salt pork, hams, bacon, etc. Some cattle were fattened on corn and driven over the mountains to the Atlantic seaboard. With the opening of the Erie Canal in 1825, an outlet was afforded to the grain of the West. Wheat began to displace corn as the chief money crop of the northern lake region, and became the breadstuff of the Northern population. The center of wheat produc-

tion was still in western New York, however, and its export from the West did not become important until after the building of railroads. Corn and livestock remained the principal products of the Ohio valley, and were shipped down the Mississippi to the cotton plantations of the South. In 1840, when this crop first appeared in the census, the production of Indian corn amounted to 377,-



IMPROVEMENT OF THE WAGON. I

The plain springless box wagon was introduced in 1810.



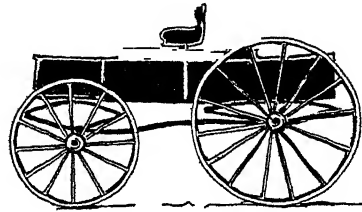
IMPROVEMENT OF THE WAGON. II

In 1820 the seat was put upon a spring.

agriculture, where a farmer produces everything that he needs, to the commercial system, where he specializes on a money crop and buys most of his supplies with the proceeds.

This specialization was greatly stimulated by the invention of improved agricultural machinery, and by improvements in transportation, which permitted the localities best suited to the production of certain crops to concentrate on them. There developed a geographical specialization,

Changes in farming.—One of the effects of all these improvements in harvesting and marketing the crops was a greater specialization in farming. There was a general change from the self-sufficing system of



IMPROVEMENT OF THE WAGON. III

The thorough-brace was placed under the body of the wagon in 1825, and in 1830 the elliptical spring was introduced over the two axles.

based on what the economist calls the "principle of comparative advantage." This states that each country or region will produce those things for which it is best fitted and rely upon other sections for those things which those sections produce more efficiently. This principle had led colonial Virginia to specialize on tobacco, Carolina on rice and naval stores, and the Middle colonies on wheat and livestock. Now the transfer of grain production to the Western States, brought about by improved methods of transportation, began the change in New England agriculture which in time completely transformed it. Market gardening increased greatly in New England and the Middle Atlantic States, while a little farther west orchard products received greater attention. The two together increased in value from \$3,000,000 in 1840 to \$35,800,000 in 1860. On the Western farms there was greater specialization in cereal production, which permitted the use of more expensive machinery and more capital.

The grain trade of the United States.—Until the building of railroads in the Western States the grain trade developed very slowly. With the completion of the system of canals and later of railroads, the grain resources of the lake basin were opened up and the trade greatly stimulated. As late as 1835 Ohio was the only State in the West exporting grain direct to the Atlantic coast. The first shipments of grain from Chicago consisted of 78 bushels of wheat in 1838, while the first shipment from Wisconsin was not made until three years later. By 1860 the total shipments of grain and flour eastward from ports on Lake Michigan alone amounted to 43,211,448 bushels. During the period 1840-60 the production of grain in the Northwestern States was estimated to have increased from 218,463,583 to 642,120,366 bushels. Of this, however, only a very small portion was exported ; on an average not more than 10 per cent. The following census table shows the increase in value of the grain exports :

EXPORTS OF GRAIN, 1823-1865		
YEARS	Aggregate Value of Exports of Grain	Percentage of Increase
1823-1833	\$67,842,211	.
1833-1843	73,303,440	8.0
1843-1853	198,594,871	170 9
1853-1863	512,380,514	158 0

Great as this increase was in the last two decades, especially after the repeal of the British corn laws in 1846, the produce of a single State like Illinois far exceeded the total exports. The real development of the export grain trade belongs to the next period. Practically all of the exports were now made via the Atlantic ports, the New Orleans grain trade having entirely disappeared ; in 1860 only 2189 bushels of wheat were shipped from that port. On the other hand, the Southern exports of cotton — which constituted about one-half of our total exports in value — and of sugar, tobacco, and rice had grown prodigiously.

Home consumption of products.— It is evident that when only 4 per cent of the cereal production of the country, or 40,000,000 bushels of grain out of a total crop of 1,000,000,000 bushels, is exported, the home market is infinitely more important than the foreign. And yet the greatest interest has always properly enough attached to the export trade, for the price at home of wheat, cotton, and other agricultural exports has been determined by the price ruling in Europe, and more particularly in England. The vast growth of manufactures in the Eastern States created a demand in that section for Western produce ; in 1863 Governor Andrew of Massachusetts estimated that the consumption of Western agricultural products in New England amounted to \$50,000,000 yearly.

On the other hand, the devotion in the Southern States to the cultivation of a few staple crops — cotton, tobacco, sugar, and rice — created profitable home markets for the

grain of the Northwest. Much of the corn, too, was not consumed as such, but was fed to stock, especially swine, which were more easily marketed than the original product. The increase in the tonnage of the lakes, from 76,000 tons in 1845 to 391,220 in 1860, and of railroad mileage, from 2828 miles in 1840 to 30,635 in 1860, sufficiently indicates the growth of the internal trade of the country.

In explaining the progress and prosperity of agriculture during this period due emphasis must be placed upon the widening markets as well as upon the improvements in production. Not only was the domestic market expanding, but there was a growing foreign demand for our products because of famine and wars abroad, the repeal of the English corn laws, and the growth of industry in that country and in Europe.

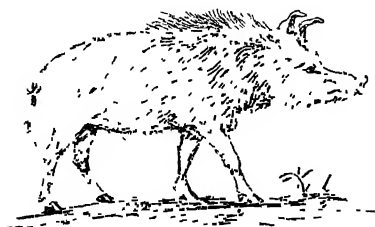
Cotton growing.— One of the most important events in the agricultural history of this period was the rise of cotton to first place among the products of the South. It passed tobacco in 1803 and has ever since led all other Southern agricultural staples. At the time of Whitney's invention cotton was raised only in Georgia and South Carolina ; thence it spread to North Carolina and Virginia during the early years of this century, but for more than twenty years it was confined to the Atlantic seaboard. By 1811 a beginning had been made in Tennessee and Louisiana, but together they produced only one-sixteenth of the cotton raised in the United States. After the War of 1812, Alabama and Mississippi also began to attract attention as cotton-growing regions, and for the next twenty-five years a perfect stream of settlers poured into this fertile district. By 1821 the four last-mentioned States raised one-third of the cotton grown in the United States, by 1831 nearly one-half, and by 1834 more than two-thirds. The production of sugar was also increasing in Louisiana at this time, and was very profitable. The growing importance of this section may be shown by the exports of cotton from Louisiana, which increased from five million pounds in 1810 to thirty in 1820 and one hundred

sixty-four in 1834. At the same time the population of the South was growing by leaps and bounds: Alabama, Louisiana, and Mississippi together increased from 116,908 in 1810 to 355,756 in 1820, 660,667 in 1830, and 1,318,818 in 1840, practically doubling every ten years.

In other chapters is discussed the relation of cotton culture to slavery; it is sufficient here to mention that it was carried on largely by Negro slaves, and that by this very fact agriculture in the South was reduced to a condition of stagnation. The wasteful system of land killing was practiced even more extensively in the cultivation of cotton than in the case of the cereals; one piece of land was cultivated continuously until it was exhausted, when it was abandoned and a new tract cleared. Since the slaves could be trusted only with heavy and crude tools, the introduction of improved agricultural machinery in Southern agriculture was rendered impossible. The use of slaves in cotton culture had also the effect of concentrating the industry on large plantations rather than of scattering it over small farms. In all these respects therefore—the crop itself, the kind of labor, the character of the tools, and the size of the farm holding—there was a great difference between agriculture in the South and that in the North. Those sections of the South which were not able to produce cotton were devoted to the raising of other staples which found a ready market in the other sections of the country. Tobacco was cultivated in the Northern tier of slave States, and by much the same methods that had prevailed during the colonial period. In Virginia and Kentucky there also grew up a considerable stock-raising industry, especially of horses and mules, for which there was a strong demand on the cotton plantations.

Livestock.—The cattle industry of the United States has always flourished on the frontier, and during this period made steady progress in the West. The first fat cattle that ever crossed the Alleghenies were driven from Ohio to Baltimore in the spring of 1805. This proved the beginning of a profitable trade, and until the railroad began to transport

them directly to the Eastern market, Western cattle were fattened on corn in Ohio during the winter months and then driven eastward in the spring. About 1832-36 a general interest in the improvement of livestock began to be mani-



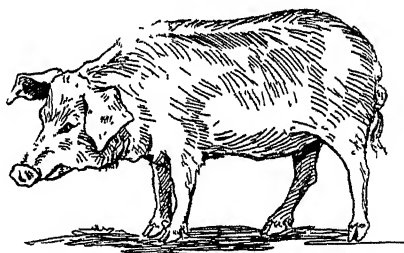
IMPROVEMENT OF THE HOG. I

The Southern pine-woods hog, which ranged wild in the woods at all seasons, developed fleetness of foot, coarse, large bones, and a thick, hard coat.

fest by farmers, largely as a result of the exhibitions at county fairs which had begun about 1810, but were now revived and improved. Durhams, Herefords, Devons, and other improved breeds were imported and crossed with the common cattle of the United States, resulting in a great improvement in size, early maturity, and quality of beef.

The first importation of merino sheep had been made in 1793, but it was not until the embargo forced the people to produce their own clothing that general attention was directed to the raising of fine-wool sheep. Societies were formed in Kentucky and Ohio to improve the breeds by the importation of pure merinos, southdowns and other blooded stock, and great improvements were effected in breeding both for mutton and for wool. These States, with western New York, remained the seat of the industry until after the Civil War.

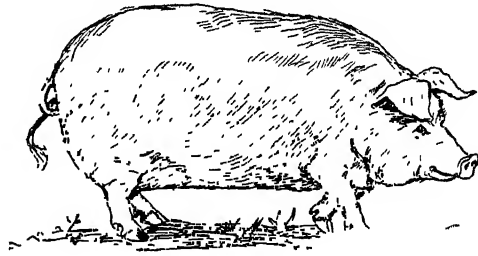
Large numbers of swine were also raised, especially in Ohio, Kentucky, and Tennessee. Abundant and cheap food



IMPROVEMENT OF THE HOG. II

The Western beech-nut hog shows an improvement, but was coarse, long-legged, large-boned, slab-sided, and flab-eared.

existed for them in the mast of the oak and beech forests, and in the corn which became their staple food after the clearing of the forests. Until after the building of improved transportation facilities, many of the hogs of the West were driven to Baltimore and Philadelphia to be slaughtered there for the domestic and foreign provision trade; later, Cincinnati became the center of the meat-packing industry and remained so until displaced, in 1861, by Chicago.



IMPROVEMENT OF THE HOG. III

The improved Suffolk shows the desirable qualities of a hog—small bones, short legs, round barrel, thin coat, ready fattening qualities, and sluggishness.

Other changes.—

A notable event was the importation into Ohio of the Percheron stallion Louis

Napoleon, from which dates a great improvement in the draft horse. Before this the most prized animals as beasts of burden, in addition to mules, were the Conestoga horses, which were early used to draw the Philadelphia-Pittsburgh stage coach. Some attention had been given to breeding trotting horses and several importations had been made; a great sensation had been occasioned in 1816 when "Yankee" trotted a mile under the saddle at the Harlem course in New York City in 2.50, but religious sentiment in the North was against speed tests. Trotting did not become a popular pastime until after the introduction of macadam pavements. Up to 1840 the buggy was practically unknown, the common mode of travel being on horseback.

An interesting change was taking place at this time in the kind of animal power used on the farm. As long as crude and heavy implements were used, such as the old bull-plow, the cart, and the clumsy wooden harrow, oxen were generally used, as they were powerful and cheap. With the

introduction of farm machinery, however, these slow and stupid animals were displaced by horses and mules, which were better adapted to this purpose.

Between 1840 and 1860 the number of sheep remained almost at a standstill, while the increase in cattle and swine did not keep pace with the growth of the population. All of these animals were raised chiefly for slaughtering. While the pork-packing industry did not assume large proportions until the decade of the Civil War, in 1860 more than 400,000 hogs were slaughtered at Cincinnati, and 230,000 at Chicago; the following year Chicago took first place. An improvement was introduced into the dairying business during this period, which in time worked a revolution in that branch of farm work. Up to 1850 all the butter and cheese was made on the farm, but in the next year the associated system of dairying known as the American system was inaugurated by the invention of the cheese-factory, of which twenty-one were built by 1861. The development of dairying led to attempts to improve the breeds of dairy cattle, and a large number of pure-bred Jerseys were imported and also some Ayrshires.

The following table shows the increase in livestock :

LIVESTOCK IN THE UNITED STATES, 1840-1860			
LIVESTOCK (IN MILLIONS)	1840	1850	1860
Horses and mules	4 3	4 8	7 3
Cattle	14 9	18 2	25 6
Sheep	19 3	21 7	22 4
Swine	26 3	30.3	33 5

Character of agriculture.—American farming was still characterized by the wasteful and exhausting methods of cropping without fertilizing that prevailed in colonial times. This was caused partly by the fertility of the soil and the abundance of cheap land, and partly by the unsettled nature of farming and the unwillingness to sink capital in improvements. "It seldom happens," wrote Tocqueville in 1840,

“that an American farmer settles for good upon the land which he occupies ; especially in districts of the far West he brings land into tillage in order to sell it again and not to farm it.” The same thing was remarked by another traveler : ¹ “There is scarcely any such thing in New England and New York as local attachment . . . Speaking generally, every farm, from Eastport in Maine to Buffalo on Lake Erie, is for sale. The owner has already fixed a price in his mind for which he would be willing and even hopes to sell, believing that with the same money he could do better for himself and his family by going still farther West. Thus, to lay out money in improvements is actually to bury what he does not hope to be able to get out of his farm again, when the opportunity for selling presents itself.” So long as land was held only as a speculation, in order to sell again, farming could not be brought to a very high state of development. The American farmer of this period has been likened to a miner, who extracts wealth from the soil, but does not restore it. Such methods were directly promoted by the prevailing practice in regard to land holding and sale, which made the farmer, in part at least, a speculator as well as an agriculturist. American agriculture has suffered from this fact down to the present. For the farmer of that time, however, this was the most economical method, since capital and labor were scarce while land was plentiful and could therefore be used wastefully.

SUGGESTIVE TOPICS AND QUESTIONS

1. What were the methods and implements in use before the introduction of the cast-iron plow, the reaper, mower, threshing machine, and other improved implements mentioned ? [*Eighty Years Progress* ; Eighth Census (1860), vol. Agriculture, Introduction, xi-xxiv ; Twelfth Census (1900), X, 352-364.]

2. Was there any connection between the different tariffs and the sheep-raising industry ? Was there a duty on cattle ? Why on one and not on the other ? [F. W. Taussig, *Tariff History*, 239, 257, 292, 330 ;

¹ J. F. W. Johnston, *Notes on North America* (Boston, 1851), p. 163.

W. M. Grosvenor, *Does Protection Protect*; C. W. Wright, *Wool-growing Industry and the Tariff*.]

3. Describe the early introduction of improved merino sheep into this country. Is sheep-raising successful in the United States today? [Eighth Census (1860), vol. Manufactures, 26-32; Coman, 182.]

4. Would you call a period of advancing prices and speculative activity, such as existed in 1834-7, "good times"? [D. R. Dewey, 224-231.]

5. What proportion of your classmates today live in the same State or county in which their parents were born? What does this seem to indicate as to local attachment? Has it any effect on good government, in our cities or elsewhere?

6. Was the wish to own a home or the hope of a rise in the value of the land the main reason, in your opinion, for the taking up of the Western lands?

7. Are the statements made on page 289 true today to your knowledge?

8. Trace the changes in the agricultural products of some typical State, as Massachusetts, New York, Ohio, Iowa. [Census volumes on Agriculture, 1850-1900.]

9. Trace the westward movement of agriculture in the United States since 1850 [Twelfth Census (1900), vol. Agriculture, part 1, 37.]

10. Is the price of wheat and cotton in the United States fixed by the price offered in London or New York? Why? [Bullock, *Introduction*, 185; A. Marshall, *Principles*, 403.]

11. What objections can you think of to the introduction of improved farm machinery?

12. Does the introduction of farm machinery increase or reduce the number of farm laborers? [E. W. Bryn, *Progress of Invention*, chap. 16.]

13. Why was Cincinnati the seat of the pork-packing industry prior to the Civil War? Why does Chicago now hold first place? [C. C. Adams, *Commercial Geography*, 80.]

14. What was the attitude of foreign nations to the reception of our wheat during this period?

15. The per capita consumption of wheat in the United States was seven bushels in 1860. What is it today? Has the amount raised kept pace with the increase in population? What do the figures show?

16. What was the quality of the fruit in the United States about 1840? How has it been improved? [Mrs. F. M. Trollope, *Domestic Manners of the Americans*, 88; L. H. Bailey, *Plant Breeding*, 4th ed., 227-314.]

17. Did the improvements in transportation during this period have any effect upon specialization in farming?

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CHAPTER XIX

SLAVERY AND THE SOUTH

The first problem of the South, after the invention of the cotton gin, was how to obtain an abundant supply of labor as quickly as possible. Having solved that problem, she had next to ascertain how to organize and use this labor force in the most economical fashion.

The development of the South.— While the country as a whole had made marvelous industrial progress during this period, the benefits were confined largely to the North and the West. The great advances in manufactures, in agricultural improvements, and in commerce had scarcely affected the South. The reason for this industrial backwardness was the specialization in cotton growing, which was bound up with the institution of slavery, and to a fuller discussion of slavery as a system of labor we must now turn. Two-thirds of the population and a still greater proportion of the wealth of the country were in the Northern States in 1860. Of the \$3,736,000,000 of wealth produced in 1859, more than \$2,818,000,000 came from Northern farms and factories. By far the greater part of the manufacturing and the mining industries of the country were situated there. In fact, the South had lagged far behind the North in the industrial advance of the previous half-century. A Southern writer, Trenholm, has the following to say on this point: "The whirl and rush of this progress encompassed the South on every side. . . Yet alone in all the world she stood unmoved by it ; in government, in society, in employment, in labor, the States of the South, in 1860, were substantially what they had been in 1810, when the abolition of the slave-trade had impressed upon their development the last modification of form of which it seemed susceptible."



SOME ARKANSAS COTTON-PICKERS

The growth of slavery.—With the increased demand for cotton, the cotton belt had gradually spread westward until in 1860 it stretched from the Atlantic across the Southern States and over the greater part of Texas. At the same time the production of cotton had almost trebled between 1840 and 1860. Hand in hand with this extension of cotton territory and of production had proceeded the growth in the number of slaves, from 677,897 in 1790 to 2,009,043 in 1830, and 3,953,760 in 1860. How dependent the extension of slavery was upon the growth of cotton can easily be seen by noting the concentration of slaves in the cotton-growing States. In 1840 more than two-thirds of the slave population were in the ten cotton-growing States, while in 1860 nearly three-fourths were to be found there. Of this large number a considerable proportion had been added by an

illicit slave-trade with Africa, but the greater part was the natural increase of the slave population. Slaves were exported mainly from the border States of Virginia, Maryland, and Kentucky, where there was diminishing opportunity for Negro employment, resulting in a vigorous slave-trade with the cotton-growing States. Olmsted calculates that the average importation of slaves into seven of the Southern States during the decade 1850-1860 was about 25,000 annually.

Nature of slavery.—Slavery is essentially a system of forced labor ; the worker does not reap the reward of his toil and is consequently less interested in its results. Under a system of free labor the full returns of his effort belong to the laborer ; the motive to exertion is self-interest instead of fear, and consequently the diligence and application are many times greater. On the other hand, the whole fruit of the slave's toil belonged to his master, who had to make in return only a small outlay for maintenance. How far the small running expenses offset the meager returns from slave labor was the economic problem involved in the system of slavery. Was it more remunerative to the slave-owning population than a system of free hired labor, quite irrespective of the rights or interests of the slaves ? Southern writers before the Civil War insisted that the prosperity of the South was bound up in the "peculiar institution," and that to destroy slavery was to ruin Southern industry ; as a matter of fact, nearly nine-tenths of the cotton was raised by slave labor.

It may fairly be admitted that by 1850 the question of free versus slave labor was no longer a debatable one. The existence of slavery and the plantation system had driven out the supply of white yeomen labor which might have done the work of raising cotton, and the plantation owners were unable to make use of any other than slave labor. When the gin was invented cotton was generally raised by white farmers. As its culture spread out to the richer lands of Alabama and Mississippi the large plantation with slave labor com-

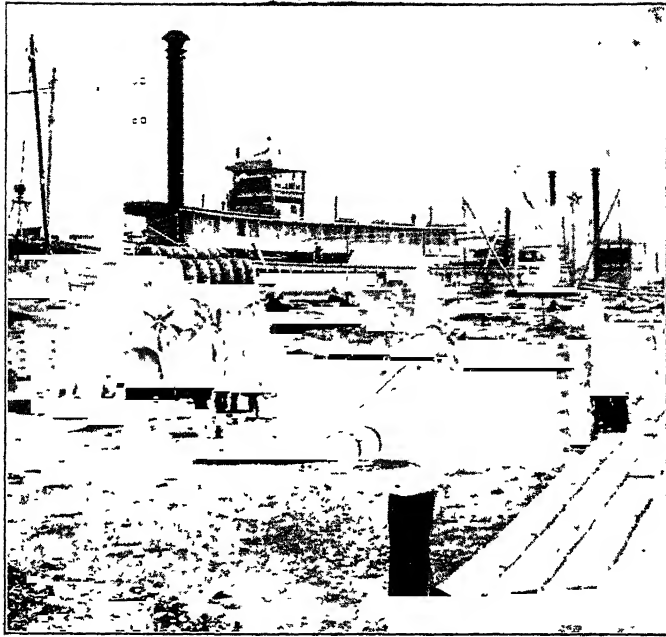
peted successfully with the small farm and finally supplanted it. The independent white farmer then left the South or retreated to the poorer lands, where he grew some cotton, raised livestock, or engaged in mixed farming. If there had been no slaves white labor would have developed the cotton industry throughout the South, though of course more slowly.

The plantation system.— By a plantation is meant a large agricultural unit in which the laboring force, generally of a large size and in bondage, worked under supervision in the production of a staple commodity for sale. On a typical Northern farm the laboring force would be small, production would not be subject to regular routine, and the commodities might be raised for home consumption. "The plantation system was evolved," says Phillips, "to answer the specific need of meeting the world's demand for certain staple crops in the absence of a supply of free labor." Under slavery the large plantation system was almost a necessity. Both the nature of the crop and the character of the labor rendered cultivation on a large scale the most economical. Intensive methods of farming were seldom possible under the indifferent and wasteful slave system. Consequently, the colonial method was persisted in, of cropping a tract of land until it was exhausted and then moving on to a fresh piece. Such a system required practically unlimited quantities of new and fertile lands ; the need of new lands for cotton growing was indeed an important factor in the effort to widen our boundaries by the inclusion of Texas, Mexico, and the lands to the southwest. This method involved at once an enormous waste of natural resources and a rapid exhaustion of the soil. In every Southern State there were enormous tracts of exhausted and abandoned cotton lands ; in fact the uncultivated land far exceeded the cultivated. The following table ¹ shows the difference in this respect among the different parts of the country :

¹ E. C. Seaman, *Progress of Nations*, II, 572.

AGRICULTURAL DEVELOPMENT IN FREE AND SLAVE STATES, 1800			
	Free States and Territories	Border States (Ill., Md., Ky., and Mo.)	Slave States
Improved land, acres	88,730,678	17,547,885	56,832,157
Unimproved land, acres	72,983,311	27,474,315	143,644,192
Total quantity, acres	161,713,989	45,022,200	200,476,349
Cash value	\$4,091,818,132	\$702,518,382	\$1,850,708,493
Average value per acre	\$25.30	\$15.60	\$9.28
Agricultural implements, value	\$142,077,802	\$21,068,903	\$82,971,438
Livestock, value	\$574,067,208	\$133,484,109	\$381,778,598

King Cotton.—There was, as we have seen, a growing concentration in the South upon the cultivation of cotton. For ten years the price of cotton had been pretty steadily falling, until it reached less than six cents a pound in 1845; the advance to nearly fourteen cents in 1857, occasioned by the expansion of manufactures in England after the tariff reforms of 1842-46 and the development of cotton manufacturing in France, greatly stimulated its cultivation. In the decade 1850-60 the production per inhabitant in the Southern States of every important cereal product, of cattle and swine, and even of the products peculiar to the slave States, as flax, rice, and sugar, fell off absolutely, while in the production of tobacco the increase was relatively less than in the Northern States. In the case of cotton alone there was a relative as well as an absolute gain; it more than trebled in the twenty years, from 1,500,000 bales in 1840 to 5,300,000 in 1860. It is evident that almost the entire labor force and capital of the South were being directed into the one channel, the production of cotton. In 1820 the production of cotton had equaled 109 pounds to each slave; by 1853 it was 395 pounds per slave. These figures show not so much an increase in the efficiency of the slaves as a great concentration of slave labor upon cotton growing. There was indeed truth in the statement so often made, that "Cotton is King." Seven-eighths of the world's supply of that staple was grown in the South. The expanding economic



COTTON LEVEE AT NEW ORLEANS

Beginning about the first of August, the cotton is picked; after being ginned it is sent to the interior markets for sale. The cotton bought for export is then sent to the seaports, whose wharves are loaded with bales from October to January. New Orleans is one of the principal cotton seaports.

demand for the one staple which could be grown under slavery caused an extension of the slave system and entrenched it still further. This, in turn, had yet other consequences of great influence upon the South.

Slavery is firmly established.—The development of slavery proceeded with the spread of cotton culture and became firmly identified with it. By 1822 the large plantation slave system was taking the lead, and by 1840 it had displaced the small farmer who was working with free labor. The character of slavery had meantime changed from the patriarchal serfdom of colonial days to a well-organized industrial system upon which was founded the economic de-

velopment of the South. At the same time the attitude of the South towards the institution changed with the expansion of the cotton industry. From 1808 to 1820 many Southerners were willing to abolish the slave system, could it be done safely and without loss. From 1820 on, however, there was no talk of abolition; the demand for cotton and the movement into the rich bottom lands of Mississippi led to a demand for labor which could not be supplied even by the traffic which prevailed between the slave-breeding border States and the cotton-growing Gulf States.

An illicit slave-trade accordingly sprang up between Africa and the West Indies or Texas, whence slaves were smuggled into the Southern States. The increased price of slaves, because of the risk attaching to the business and because of the demand in the cotton-fields, proved an irresistible attraction to American capital, and much was invested in the trade. In 1815 the average value of all slaves dependent on cotton culture was \$250; in 1840 it was estimated by De Bow at \$500. Slavery had now become more than ever localized in the South. In 1820 only 19,108 of the 1,538,038 slaves in the United States lived north of Mason and Dixon's line; in 1840 only 1129 out of 2,487,355 were to be found there.

Towards the middle of this period, in 1831, the anti-slavery movement began in the North and continued until slavery was done away with during the Civil War. There was, however, a strong anti-abolition spirit still to be found there, while Congress remained distinctly neutral or even friendly to the slave interests, as indicated by the "gag resolutions" which tabled without further action all anti-slavery petitions presented to Congress. About 1838 a change in sentiment towards slavery began in the North, but it did not gather strength until after 1840.

✓ **Advantages of slave labor.**— There were certain advantages to the slave-owner in a system of slavery. After his original investment, the slave-holder paid only the cost of maintaining his slaves and then possessed himself of their entire output. As a result of his absolute control over his

slaves, the owner could direct, organize, combine, and move them as he saw fit for the attainment of his ends. On the other hand, in order to utilize to the utmost these advantages, those crops had to be cultivated which would permit of their application in the highest degree. Of all crops cotton conformed most adequately to the conditions necessary to a profitable use of slave labor. Cotton culture was very simple, requiring few tools and only routine work. Furthermore, it gave employment for ten months in the year, so that the slave was idle very little of the time. And, most important of all, it permitted the organization of labor on a large scale ; single slaves could not cultivate more than three or four acres of cotton (as compared with thirty or forty acres of corn), and they could therefore be more compactly massed than in the cultivation of cereal crops. Because of their ignorance and lack of versatility, it was possible to employ the Negroes only on staple crops which called for mechanical labor. The existence in the South of a crop, like cotton, which met these requirements in a high degree, firmly entrenched slavery and caused its rapid extension.

Defects of slave labor.— That the Negro, at best only a generation or two removed from African barbarism, should have remained below the industrial standard of the white man, with his centuries of training, was natural. When to inherited incapacity are added the defects of the system of slavery, one cannot feel surprised at the inferiority of slave labor. Since his labor was forced, the slave gave it reluctantly ; he put as little strength and earnestness into his work as was compatible with safety from flogging. Olmsted concluded that slaves were hardly one-half as efficient as free laborers. This disinclination to work, and the frequent shamming it led to, necessitated the use of highly-paid overseers, which tended to offset the cheapness of the slave labor.

Another characteristic was its ignorance, clumsiness, and wastefulness. Only the heaviest and simplest tools could be used ; improved implements and machinery and fine livestock could not be entrusted to the slaves. The inefficiency

of Negro slave labor as compared with the responsible and intelligent free white labor of the North was thus greatly augmented. As it was impossible to introduce improvements in methods of agriculture or labor-saving devices into the South, this section of the country tended continually to fall farther behind the rest of the nation in the relative production of wealth. Finally, the lack of interest, of elasticity, and of versatility of slave labor confined the Southern States to a few staple agricultural crops, and entirely prevented any diversification of industry or the rise of manufactures.

But the disadvantages of slavery were not confined to the character of the labor only. A defect of another kind was the difficulty a young man of small means experienced in getting a start in a slave district. Land was cheap, but to purchase the necessary labor force necessitated a large investment of capital — much more than was required for the land and livestock. It was difficult for anyone to become a planter unless he had inherited slaves or had wealth. A farmer in the Northwest could expand his operations with very much less capital. Even in the case of wealthy planters the necessity of locking up a large amount of capital in slaves probably held the labor force down to a point below its most economical expansion.

Effect on the production of cotton.— The result of such a system was first that the production of cotton, great as it was, did not begin to equal the capabilities of the South. Only a small part of the land was cultivated ; in 1850 De Bow calculated that the entire cotton crop of that year was grown on only 5,000,000 acres. And, secondly, since its cultivation depended now largely on slave labor, its production increased only with the growth of slavery. As this form of labor was increased at the best more slowly than similar supplies of free labor would have been, the system of slavery stifled the progress of the South even in that branch of production in which it was supposed to excel and to which it had sacrificed all others. There was no equilibrium between supply and demand ; since his capital was all invested

in slaves and cotton lands, the planter found it practically impossible to decrease his production in times of over-supply and equally difficult to increase it rapidly when the price rose. Cotton growing was thus extremely uncertain and speculative. The production of cotton probably lagged behind the economic demand during the decade and a half before the war, as is shown by the rising price of that commodity and by the great increase in the price of slaves. In 1840 the average value of all slaves dependent on cotton culture was estimated by De Bow at \$500 ; twenty years later Olmsted found that good field hands were worth \$1400 on the average, while as high as \$2000 was sometimes paid.

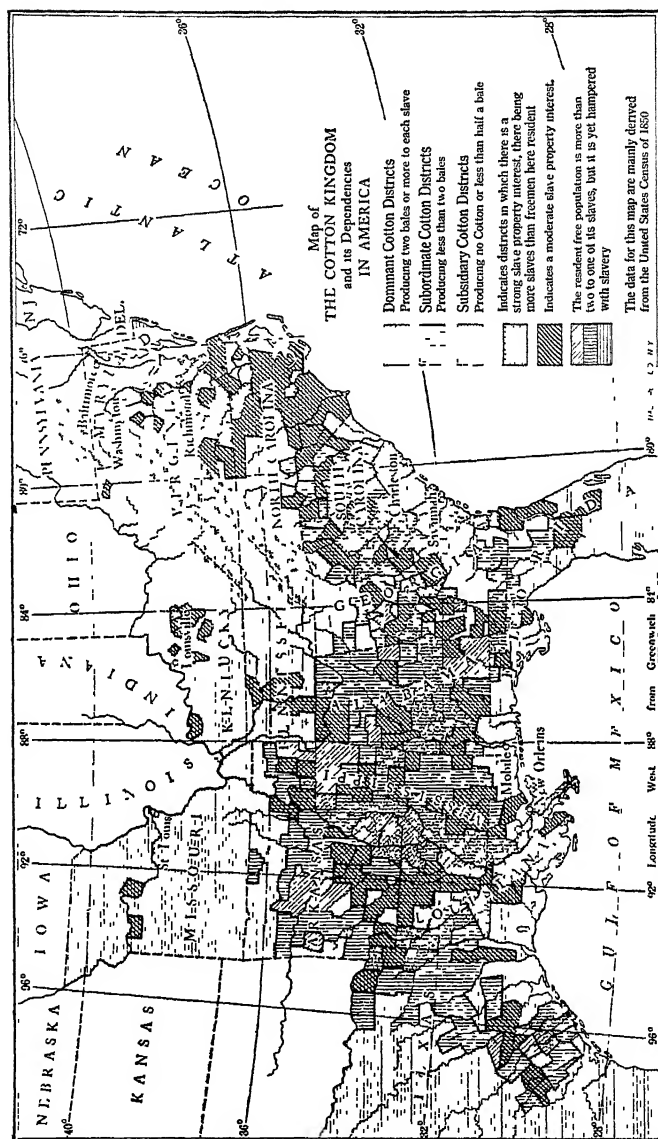
The economic cost of slave labor.— That slavery involved an economic loss to the nation and also to the South as a whole is evident. Was it profitable to the slave-owner ? The items involved in the yearly cost of a slave to his master were many, including interest on capital invested in him, cost of maintenance (food, clothing, and lodging), depreciation, taxation, and insurance against death, sickness, and flight. Did these items amount to more or less than the wages of a free laborer ? On this point may be quoted the testimony of a slaveholder from Kentucky about 1840, as reported by the English traveler, J. S. Buckingham :

He said he had not only made the calculation, but had actually tried the experiment of comparing the labour of the free white man and the Negro slave ; and he found the latter always the dearer of the two. It took, for instance, 2000 dollars to purchase a good male slave. The interest on money in Kentucky being ten per cent, here was 200 dollars a year of actual cost ; but to insure his life it would require at least five per cent more, which would make 300 dollars a year. Add to this the necessary expenses of maintenance while healthy, and medical attendance while sick, with wages of white overseers to every gang of men to see that they do their duty, and other incidental charges, and he did not think that a slave could cost less, in interest, insurance, subsistence, and watching, than 500 dollars or £100 Sterling a year ; yet, after all, he would not do more than half the work of a white man, who could be hired at the same sum, without the outlay of any capital, or the incumbrance of maintenance while sick, and was, therefore, by far the cheaper labourer of the two.

Any comparison between slave labor and white free labor must be misleading, for many of the defects in the system were due to the fact that the slave was a Negro as well as a bondman. The real problem involved was that of the relative efficiency of slave and free Negro labor, an answer to which is the solution of the labor problem of the South today.

Character of plantation management.—The defects of the system were, however, not wholly caused by the quality of the labor ; the incapacity of the masters was also responsible for the failure of agriculture in the South. The absence of rotation or diversification of crops and of the use of fertilizers to prevent the exhaustion of the soil, of improved livestock, machinery, building, and fences ; in short the lack of a scientific agriculture, even among the small planters without slaves, was a frequent matter of complaint in Southern journals and conventions. Large plantations were the rule : the average size of the farms in the ten cotton States in 1850 was 273 acres, and this had considerably increased by 1860. Some of the cotton plantations contained more than 10,000 acres, but these were confined to the rich alluvial lands of the Mississippi bottoms. On the poorer and less fertile soils of the Piedmont and upland regions, which were poorly adapted to plantation methods, small farms were the rule.

On the large plantations the management was generally left to an overseer, who sought only to obtain the largest possible crop without regard to the future. Absenteeism of the owner was not frequent, as the planter's life was regarded as an ideal one. But the planters felt a contempt for labor, were often unenterprising and lazy, and did not develop their estates. Moreover, the profits secured from cotton production, instead of going to improve the land, were spent unprofitably or sunk in the purchase of fresh fields and additional slaves. The capital of the South was thus invested in fixed forms which tied it down to prevailing methods and permitted no improvement or diversification from year to year.



Moral effects of slavery.—The effects of slavery obviously did not end with the economic losses involved ; more insidious and harmful were the social results. Not only were the marriage relations among the slaves loose in the extreme, but they were rendered still more so by the breaking up of families through sale. Such a state of affairs, together with the possession of unlimited power on the part of masters and lax morals on the part of female slaves, reacted upon the relations between the whites and blacks. Of the treatment of slaves it is difficult to speak with accuracy. On the large cotton and sugar plantations, and especially in the malarious rice-fields of Georgia and South Carolina, the Negroes suffered most. Here they were under the direction of overseers and were driven and herded in gangs. House servants and those owned in small numbers were usually treated with humanity and even consideration. The possession of absolute power by practically irresponsible masters must often have led to abuse of that power and to inhuman conduct. Flogging necessarily accompanied the system of slave labor, but wanton cruelty in the use of the lash certainly did not rule. The treatment was probably severest in the lower South, but the supervision was strictest in the border States, where there was greater danger of running away.

The diet of the slaves was coarse but wholesome ; corn-meal, with molasses, and generally bacon, were the staples. The clothing was of the coarsest, and the cabins, while rude, were probably as good as the inmates could appreciate.

Slaves were regarded as only a form of property ; they were sold and transferred like other commodities. Regular slave-markets were held where slave-dealers auctioned off their human chattels. To the credit of the South it must be said that the slave-dealer was usually a social outcast. Every effort was made to keep the slave from rising, and while religious instruction was generally given, education was strictly forbidden by law.

On the other hand, it may be pointed out that the system

of slavery acted as a vocational training school for those who were subjected to its rigorous discipline. Negroes who had lived in a stage of savagery in Africa were compelled to adapt themselves to the demands of a developed civilization, and to perform tasks of whose very existence they had been ignorant. Within the space of a generation they were forced to make a transition which had taken the white race thousands of years to compass. Harsh though this training may have been, it was effective. Another good result, dictated again solely by self-interest, was the enforcement of temperance and the prohibition of the sale of liquor to the slaves. These were thus saved in large measure from one of the curses which has so frequently destroyed primitive peoples in their first contacts with Europeans.



RUNAWAY SLAVE

This cut was a familiar illustration in Southern newspapers, where it headed the advertisements of runaway slaves. The following is an example of such an advertisement: "Ran away, negress, Caroline; had iron collar with one prong turned down."

Slavery and the population.—The ownership of the slaves was concentrated in a very few hands. Less than 5 per cent of a population of 8,000,000 whites in the Southern States owned the 3,950,000 slaves in the United States in 1860. Associated with these actual slave-owners were many persons, as merchants, lawyers, and even clergymen, who, while not slave-owners themselves, sympathized thoroughly with them in their attitude towards slavery. There was thus a strong segregation of the races as a result of this institution.

The white farmers tended to concentrate in the so-called white counties, where the soil was less fertile and the transportation facilities poorer, while the slaves with a sprinkling of whites were localized in the more fertile districts. The

Negroes may be differentiated into field hands, and house servants, artisans, mechanics, etc. ; and the whites into the slave-owners and the professional and commercial classes at one extreme and the "poor whites" at the other. There was also a small and growing number of free Negroes, though most of these were to be found in the North.

Progress of the South prevented.—Slavery prevented the growth of population in the South. Although they had started out almost absolutely even in 1790, the North had increased much more rapidly, having in 1860 a population of 19,083,927, as against 12,315,374 in the South. Much of this increase naturally came from foreign immigration, which avoided the slave States and peopled the central States and the Northwest. Greater than this loss, however, was the lack of diversified industries in the South. Not merely was the agriculture confined to a few staple crops, but, most important of all, manufactures and mining were prevented from developing.

The Southern States were rich in natural resources, deposits of iron and coal, timber and water power, but these remained almost absolutely undeveloped prior to 1860. It was impossible to carry on these industries with slave labor, and so long as slavery existed, neither free labor nor capital could be attracted to their exploitation. Of the real and personal property in the country, \$10,957,000,000 was credited to the Northern States in 1859 as against \$5,202,000,000 to the South. Industrially and commercially the South remained stagnant, and not until war had abolished slavery was it prepared for the splendid industrial advance upon which it afterwards entered.

SUGGESTIVE TOPICS AND QUESTIONS

1. What differences were there between slavery in the ancient world and in the United States ? [R. H. I. Palgrave, *Dictionary of Political Economy*, art. Slavery ; *Encyclopedia Britannica*, art. Slavery.]
2. What was the "black belt" ? [W. G. Brown, *Lower South in American History*, 25.]

3. What proof or illustrations can you give to show that the inefficient methods of the masters were responsible for the industrial backwardness of the South? [E. Ingle, 56-58; F. L. Olmsted, all books.]
4. Mules were generally used on Southern plantations instead of horses, why? [F. L. Olmsted, *Seaboard Slave States*, 47; Ingle, 60.]
5. What effect did the existence of slavery have upon the education of Southern white children? [J. F. Rhodes, *History of the United States*, I, 343.]
6. What effect did the institution of slavery have upon the attitude of the South to the questions of (a) protection and tariff, (b) internal improvements? [J. B. McMaster, *History of People of United States*, V, 170.]
7. What effect upon their attitude to the annexation of Texas, and the war with Mexico? [M. B. Hammond, *The Cotton Industry*, 55-58; E. Ingle, chap. 9; Brown, *Lower South*, 83-112.]
8. Was there any internal migration of non-slave-owning whites from the Southern States to other States? Why? [Eighth Census (1860), vol. Population, 33-34.]
9. What proportion of the total exports and imports respectively belonged to the South? Did this involve a loss to the South? [D. R. Goodloe, *Resources and Industrial Conditions of Southern States*. Report of United States Department of Agriculture, 1865, 117; J. D. B. De Bow, *Industrial Resources of the South and West*.]
10. What were some of the non-agricultural industries of the South, and how far were they developed? [Ingle, chap. 3; Coman, 249-254; De Bow, see Index.]
11. Trace the development of manufactures in some typical Southern State up to 1860. [Eighth Census (1860), vol. Manufactures, 11-14; Ingle, chap. 3.]
12. What proportion of the food, clothing, etc., consumed in the South was raised there? [Ingle, 64; Eighth Census (1860), Manufactures, 67; De Bow, III, 195-207, 285-299.]
13. What was the proportion of large and small farms in the North and South? [Eighth Census (1860), vol. Agriculture, 221.]
14. How much capital was invested in slaves in 1860? If slavery had never existed, how would this wealth probably have been invested? Would the South have been better off?
15. How did the growth of cities in the South compare with that of those of the North? [Twelfth Census (1900), I, 24-25.]
16. What was the development of railroads in the South? [Ingle, 99; Coman, 252.]
17. Was the movement towards emancipation so strong before 1860 as to lead you to believe that the slaves would have been voluntarily freed in a short time? [Brown, *Lower South*, 50-83; Olmsted, *Seaboard*

Slave States, 125-133, 633-637; Eighth Census (1860), vol. Population, 15-16.]

18. Describe the effects of serfdom and the emancipation of the serfs in Russia. [N. I. Stone, *Capitalism on Trial in Russia*, in *Political Science Quarterly*, XIII, 91; P. Leroy-Beaulieu, *The Empire of the Tsars and the Russians*, I, 403-473, 505-579; V. G. Simkhovitch, *The Russian Peasant and Autocracy*, in *Political Science Quarterly*, XXI, 569-595.]

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CHAPTER XX

PROGRESS OF THE PEOPLE

The energies of the American people were largely absorbed in material tasks during this period, but they were not neglectful of cultural, educational, and recreational needs. The extent to which these should be developed, especially if they seemed to interfere with necessary economic improvements, always presented a problem. The great advance in this period was in the clearer recognition of human rights rather than in the development of culture or of leisure and its enjoyment.

Economic changes.— In the preceding chapters has been described the economic development of the United States ; but it is not easy to state the effect on the condition of the common man of the growth of material wealth which attended this expansion. The economic changes had been varied and far-reaching. The population had moved across the Appalachian barrier and now occupied the land in a continuous stretch to a line considerably beyond the Mississippi River. With its spread and with the growth of new agricultural, industrial, commercial, and financial interests, the old class distinctions of the colonial period had broken down if they had not entirely disappeared. The acquisition and the parceling out of a vast public domain had created new classes of independent farmers in the North and of commercially-minded slave-owning planters in the South. The population, which was overwhelmingly rural at the beginning of this period, was becoming increasingly urban by 1860.

This change was closely related to the growing industrialization which was taking place. A wage-earning class had come into existence and old-world distinctions began employer and employee, between capital and labor, had appeared. The market had been greatly expanded by im-

proved methods of transportation and communication, and new forces of competition compelled changes in manufacturing and marketing processes. Great opportunities for the acquisition of wealth were opened up for the shrewd and capable, and at the same time possibilities of exploitation of the weak and ignorant. The lines of cleavage became economic rather than social. Labor, coming to represent a distinct class interest, began to organize for the purpose of improving its condition. And the numerous economic forces thus set in motion in this dynamic society were periodically disturbed and misdirected by outbursts of speculative activity and by ill-advised experiments in banking.

Class distinctions.—In a previous chapter¹ the sharp class distinctions that prevailed during the colonial period were described. These distinctions tended to disappear with the extinction of some of the legal props such as primogeniture and entail and the replacing of the former Tory landed gentry by a more pushing commercial group after the Revolution. Differences in birth, in education, and in wealth still found expression in dress and manners, but the rigid class barriers of the earlier period were swept away. It was possible for any young man of ability to rise from the lowliest to the highest position, both in political life and in economic affairs. Two examples may be cited to illustrate the point—the rise of the poor North Carolina mountaineer boy, Andrew Jackson, to the presidency of the United States, and of the illiterate and poor New York youth, Cornelius Vanderbilt, to a position of unexampled wealth and power. Except for the Negro slaves there were no closed castes, either of aristocracy, of middle class farmers and shopkeepers, or of poorer artisans and the growing group of factory workers.

With the opening up of new opportunities in land speculation, in trade, in manufacturing, and in finance, however, a new emphasis was placed upon the possession of capital. The old colonial leadership, based upon birth, education, and

¹ See Chapter VI.

land, was now transferred to a rising moneyed class in the North and to a powerful slavocracy in the South. Political power passed from the colonial Tories to the democratic masses, particularly of the developing West.

Certain lines of cleavage, economic rather than social, were revealing themselves during this period with increasing distinctness. The first of these was the struggle between the dynamic industrialism of the North and the static slave system of the South. While this was fought out politically in Congress in efforts to obtain a commercial policy favorable to the interests of each group, the real issue was determined by economic changes, which were inexorably transferring power from the planting to the commercial and industrial States. That the final issue was inevitable is shown by the census returns. In 1860 the manufacturing output of the country, including mines and fisheries, was valued at \$1,900,000,000, while the Southern staples — cotton, rice, sugar, and tobacco — amounted to only \$204,000,000. The iron and leather goods of Northern mills were worth more than all the cotton grown in Southern fields. With such increasing diversity of interests there could be no compromise between free enterprise and a system of slavery ; and with such disproportion of power there could be only one outcome.

The other line of cleavage was between capitalists and wage-earners. During the colonial period man had carried on a struggle with elemental nature, and had succeeded in utilizing, in ever greater measure, her resources and forces for the satisfaction of his needs. Now, however, steam and water power were substituted for human muscle, and machines run by power took the place of hand tools. Capital became increasingly important, not only in manufacturing and the mechanic arts, but also in transportation, marketing, finance, and even agriculture. But capital required labor to utilize it and labor depended on capitalists for employment. Beginning in the 1830's a struggle developed between the capitalist owners of the new instruments of production and the wage-earners, now shorn both of their hand tools and of

their skills as hand workers. Upon what terms and for what wages should the laborers accept employment? The answer to this question must be sought in the history of the labor movement and of labor legislation; but it was not settled by 1860.

The acquisition of civil rights.—The three-quarters of a century ending in 1860 was essentially a period of pioneering, and of pioneering not merely into the land west of the Appalachian Mountains, but in other fields of human activity. Behind the unceasing efforts to subdue nature and to turn the resources of a rich environment to the satisfaction of men's needs there lay a passionate belief in equality on the part of the common people. Although this was given clear expression in the Declaration of Independence it had little practical application at first. The traditions of the past, the time-honored distinctions of learned and unlearned, of rich and poor, and the lack of organization and articulateness on the part of the masses prevented its realization.

The first breach in the crust of custom was made by the extension of the suffrage. At the time of the adoption of the Constitution perhaps one person in twenty was a voter. The decade of the twenties, however, swept away most of the old property and religious limitations upon the right of universal manhood suffrage, and a little later removed those on office holding. A new weapon was thus placed in the hands of the working class in their struggle for the realization of human rights. The fight was a long one, however, and bitterly contested at every step of the way.

A particularly flagrant denial of human liberty, as it seems to us today, and against which society earliest reacted, was imprisonment for debt. For a debt as small as a cent a debtor could be seized and thrown into jail, there to remain until the debt and the prison charges were paid in full. No provision was made for furniture, for bedding, or for food; these must be provided by relatives or friends.² Although

² For a graphic description of the terrible conditions in the prisons, see J. B. McMaster, *History of the People of the United States*, I, 98-102.

Pennsylvania after 1794 furnished fuel, blankets, and an allowance of seven cents a day for food, no further change was made in the debtors' prisons for another twenty years. In 1817 New York forbade the imprisonment of debtors for sums less than \$25 ; New Hampshire followed the next year with \$13.33, and Vermont a year later with \$15. This led the way and State after State followed with similar legislation. The waste and injustice of the system was well illustrated by a report of the keeper of the debtors' prison in Philadelphia in 1828. During that year there had been confined 1085 persons, whose debts amounted to \$25,409 ; the creditors had recovered \$295, and the cost to the community of supporting the prison and the debtors was \$285,000. Against such an indictment the system could not survive, and imprisonment for debt, unless fraudulent, was gradually abolished by all the States. This was followed in the next decade by the actual exemption of wages and tools from execution for the wage-earners' debts. Thus rights of persons were declared to be superior to rights of property.

Not only was the working man treated harshly as a debtor, but as creditor he lacked the protection of the law. He was frequently paid in truck, in store orders, or in depreciated bank notes. And if not paid at all he could collect only by the expensive method of bringing suit before a court of law. Mechanics' liens protected the master, but not the wage-earner. In 1829 the New York Working Men's Party demanded a lien law to protect laborers, which was granted by the legislature. This was the beginning of a movement which continued throughout the rest of the century to compel employers to pay their workers regularly in cash and before all other creditors.

Education.—Although Jefferson had proposed, as early as 1779, that Virginia be divided into districts, in each of which a school should be supported by taxation, open to the children of all citizens, free of tuition for the first three years, the movement for universal free elementary education made slow headway. The wide dispersion of an agricultural

population, the opposition of the propertied class to a system of education for the masses, the lack of political power of the workers until the suffrage was obtained, and other factors delayed for half a century the full realization of the Jeffersonian ideal. Yet the pressure was too strong to be entirely ignored, and some forward steps were taken.

In addition to the parochial and the pauper schools of the colonial era three new types were introduced during this period. The Sunday school, for the purpose of giving working children instruction in reading and the Church catechism, was imported from England into Philadelphia in 1791. The churches, objecting to secular instruction on Sundays, soon took these over and made them agencies for religious instruction. A second type of elementary school, also borrowed from England, was the monitorial school, in which competent older pupils transmitted to the younger information which they had learned by rote from the teachers. Introduced into New York in 1809 it quickly spread to every State in the Union, and was even adopted as a method of teacher training in some. It had the merit of being cheap, it provided mass training, and it was a step toward the ideal of universal free education. A third type, of less importance, was the infant school for poor children who were too young for the monitorial school. This became the primary school of a later day.

A vital force in the movement toward free popular education was the demand of enfranchised labor for free schools other than the charitable or "ragged schools" which had come down from colonial days. The Working Men's Party of the late twenties and thirties placed first among their demands a free public school system supported by taxation and non-sectarian in its control. This demand was soon sponsored by the major political parties and was given vitality by the Jacksonian program of destroying monopoly and privilege in every form — in education as well as in banking and manufacturing.

In the thirties and forties the movement for free public

schools took on new vigor, especially in the newly created Western States. Here there were no vested interests in the form of private schools or academies, sectarian control of the churches was weaker, and the people were more convinced of the need for education. The honor of leadership belongs to Michigan, which, in 1827, laid the foundations for a system of free public schools and, in 1837, created a State university. The Eastern States made slower headway against the vested interests and prejudices of an older society, and in the South there were no State-wide systems of public schools in operation up to 1860. Taking the country as a whole, however, there were nearly 100,000 elementary schools in existence at this date.

For the learning of trades apprenticeship was the only method. As machinery began to be introduced and standardized articles were produced in factories, craftsmanship lost its importance and more reliance came to be placed on general intelligence and ingenuity. However great the shortcomings of formal education may have been, the Americans were learning valuable lessons in the school of experience, using new methods and new tools to solve the varied problems of a changing environment.

The education of the children of the working man usually ended with the elementary school. But for the children of the more prosperous middle class something more was demanded. The narrow Latin grammar schools did not fill the need for a liberal and vocational training, such as befitted the requirements of an increasingly commercial and industrial country. This need was met by the establishment of academies, founded under private or local auspices, free from sectarian control, and with a broad curriculum of studies. To these academies flocked the sons and the daughters of merchants and farmers who could not hope to go to college, but who wished a liberal education of our present-day high-school level. By 1860 more than six thousand academies were in existence. In addition to these between three and four hundred high schools had been established.

At the top of the system of education stood the college. Some of these had been founded during the colonial period, but now a new impetus was given to the movement. To the nine colleges of colonial days there were added about thirty-five more by 1820 ; by 1860 almost 250 institutions of college grade had been founded, of which seventeen were State institutions. The narrow curricula of the colonial period were gradually broadened, but the students were drawn almost exclusively from the more well-to-do classes.

Position of women.—In this rapid advance women had shared, but very unequally. Their position in 1800 was



SUSAN B. ANTHONY

Active in the total abstinence and anti-slavery movements, a believer in co-education, and a champion of woman's rights, she was a leader in the woman suffrage movement to which she devoted her later life.

practically the same as that of their grandmothers in the colonial period. The home was considered their rightful domain and to it they were expected to devote themselves. Women were assigned a place in the social organization distinctly inferior to men, intellectually, politically, economically, and legally. Institutions of higher learning were closed to women until Oberlin College, founded in 1833, opened its doors to them. The right of suffrage was denied them during the whole of this period, as it was to slaves. Business and the professions were regarded as the exclusive domain of men, but breaches were gradually made in the citadel of privilege. In 1849 the first medical diploma was granted to a woman and in 1853 another was ordained as a Congregational minister. The movement for legal equality had begun even before this. Married women demanded the right to acquire and to hold property and to

be exempt from liability for their husbands' debts. Mississippi was the first State to recognize this claim, in 1839 ; New York, Pennsylvania, Texas, and Indiana took similar action in 1848, followed two years later by California and Wisconsin.

The first women's-rights convention in the history of the world was held in 1848, at which a declaration of woman's independence was drawn up. In this it was asserted that "all men and women are created equal," and the demand was made for equality with the men before the law, in educational and economic opportunities, and in the suffrage. More might have been accomplished along these lines had not the struggle over slavery diverted the attention of the feminist leaders into the anti-slavery movement.

In curious contradiction to the denial of civil equality to women was the high social position accorded them. In no country was greater deference shown her, even in the more primitive communities, a phenomenon universally noted by European travelers.

Characteristics of the American.—In a population so heterogeneous as that of the United States, exposed to such rapidly changing conditions, contradictions abounded. Many attempts were made by European travelers to describe this composite being, the typical American, but they usually reflected only the limited observations or the prejudices of an individual. A careful estimate, about 1814, was made by Mackenzie, a Scotchman.³

He thought that the people of New England were inquisitive, that the descendants of the Dutch especially were avaricious, that the laboring classes were better dressed and more independent than those of England, but the genteeler classes were more slovenly. The women were handsome, but not so healthy in appearance as the English, and their beauty was short-lived. The people of the Northern States were plain, honest, and industrious ; the planters were lazy and self-indulgent. There was a deep prejudice between the people of the sections. Tobacco was used

³ Quoted from Gaillard Hunt, *Life in America One Hundred Years Ago* (New York, 1914), 32.

to excess by all classes, and they were generally addicted to dram-drinking. They carried the spirit of independence to an extreme and lacked courtesy. There was a dead-level of intelligence in the United States, the gradations of intellect which existed in England being unknown. The laborer was more intelligent than his brother in Europe ; but the middle classes were not so well informed.

Judicious as this estimate is, it leaves out of account the rough and turbulent life of the frontier and the rapidly developing West, concerning which contemporary accounts by European travelers were not so charitable. Among other characteristics attributed to Americans were boastfulness, impulse to excess, intolerance, curiosity, lack of thoroughness, the precociousness and pertness of children, and other similar traits. Some among our critics saw a little deeper and emphasized the courage, the initiative, the optimism, and the generosity of these pioneering folk, who were subduing a continent and attempting to erect a more just political and social order than that of the old-world countries from which many of them had fled.

Another feature of American life which may be noted in this connection was the monotony and the lack of balance of the diet. Indian corn was the national crop and this appeared on the table three times a day. Corn was eaten as such in various dishes, but more frequently in the form of salt pork, into which it was transformed by being fed to the hogs. It must be remembered, however, that ice-chests were unusual and only the wealthy could afford fresh meat. In the rural sections hogs cost nothing to keep, and little to kill and preserve. Thus the staple diet was salt pork, Indian corn in one form or another, and heavy pastries, washed down by strong coffee or stronger liquor. William Cobbett thought drinking the national disease. As a result of the diet dyspepsia was common ; cold houses produced rheumatism, and in the swampy regions and the river bottoms malaria and fever and ague were prevalent. These were some of the human costs involved in the material advance of this period.

Recreation.— At the beginning of the nineteenth century Americans were only beginning to amuse themselves. Most of the people lived in the country and the diversions were such as cost little and fitted into the daily lives of the people. Timothy Dwight, a minister and later president of Yale College, wrote as follows of New England :

The principal amusements of the inhabitants are visiting, dancing, music, conversation, walking, riding, sailing, shooting at a mark, draughts, chess, and unhappily, in some of the larger towns, cards and dramatic exhibitions. A considerable amusement is also furnished in many places by the examinations and exhibitions of the superior schools ; and a more considerable one by the public exhibitions of colleges. Our countrymen also fish and hunt. Journeys taken for pleasure are very numerous, and are a favorite object. Boys and young men play at foot-ball, cricket, quoits, and at many other sports of an athletic cast, and in the winter are particularly fond of skating. Riding in a sleigh, or sledge, is also a favorite diversion in New England.

Such amusements may have satisfied Puritan New England, but in other sections of the country different diversions were sought. Outside of New England horse racing was the most general sport, especially in the South. Trotting races began to rival the earlier running races in popularity, and new breeds of horses were developed to meet the demand. The traveling circus brought relaxation to thousands of lonely farm families, debarred from the city theater or similar entertainment. The supreme showman of this period was P. T. Barnum, whose numerous hoaxes delighted the people, but who also furnished high class entertainment, as in the case of the Swedish singer, Jenny Lind.

In the newer and rural districts the men preferred rough sports, like fighting, wrestling, running matches, and other feats of strength. By the end of the period the more brutal forms of sport, like bear-baiting, cock-fighting, and gouging had been outlawed by public opinion. Few men in America had much leisure for amusements as such, and these were usually fitted into a program of work, as a house- or barn-raising. For the young people there were quilting-parties,

husking-bees, and similar events. Camp-meetings furnished relaxation and excitement as well as religious conviction of sin.

Living conditions.— It is difficult to make comparisons of living conditions between two widely separated periods, for in the interval many technological changes occur which completely alter the scale of living of all members of society. "The luxuries of one generation," it has been said, "become the comforts of the second generation, and the necessities of the third." So it was during this period. There was a steady advance in material improvements, which were shared, though unequally, by all members of society.

The home and the clothing of an unskilled laborer in 1784 are described as follows by McMaster : ⁴ "In the low and dingy rooms which he called his home were wanting many articles of adornment and of use now to be found in the dwellings of the poorest of his class. Sand sprinkled on the floor did duty as a carpet. There was no glass on his table, there was no china in his cupboard, there were no prints on his wall. What a stove was he did not know, coal he had never seen, matches he had never heard of. Over a fire of fragments of boxes and barrels, which he lit with the sparks struck from a flint, or with live coals brought from a neighbor's hearth, his wife cooked up a rude meal and served it in pewter dishes. He rarely tasted fresh meat as often as once a week. . . . If the food of an artisan would now be thought coarse, his clothes would be thought abominable. A pair of yellow buckskin or leathern breeches, a checked shirt, a red flannel jacket, a rusty felt hat cocked up at the corners, shoes of cow-hide set off with huge buckles of brass, and a leathern apron, comprised his scanty wardrobe. The leather he smeared with grease to keep it soft and flexible."

The next seventy-five years saw a change in practically every one of the items just mentioned. About 1815 coal began to be used in the home, iron ranges were substituted

B. McMaster, *History of the People of the United States*, I, 96, 97.

for the open fireplace for cooking, and iron stoves were set up in other rooms. Tinware became the favorite kitchenware in place of the heavy iron pots and brass kettles, while glass and china replaced pewter on the table. Gas was introduced for street lighting in Boston in 1822, and in other cities soon afterwards, and made its way more slowly into the homes. This same period saw the distribution of a plentiful supply of pure water in the growing cities by means of municipal water mains consisting of wooden pipes. The construction in 1842 of the Croton aqueduct, which brought water to New York City from a watershed fifty miles distant, was hailed as an engineering triumph. The first omnibus line was established in New York in 1828, and two decades later efficient fire departments began to be organized in place of the volunteer companies in the larger cities. Thus, step by step, the basis was laid for a more comfortable and safer existence for the increasing urban population.

Many of these improvements, however, were enjoyed only by the well-to-do. The rapid growth of cities in the decade of the forties, as a result of the expansion of manufactures, outran the housing facilities and resulted in thoroughly unwholesome conditions. The chief of police in New York reported in 1850 that a thirtieth of the people were living in underground cellars, and the Massachusetts Labor Bureau described the tenement houses of Boston as "hovels reeking with damp and mold . . . with putrid cesspools and uncleaned drains." The great immigration of this period, flooding the labor market with workers accustomed to a low standard of living, held wages down and prevented improvement in the industrial centers. After the gold discoveries conditions were even worse, for living costs rose without a corresponding advance in wages.

In the rural districts, and especially in the developing West, living conditions did not differ so radically from those of the colonial period. But the rapid growth of domestic manufactures, the improvements in means of transportation and the reduction in the costs of distribution, brought to the

farmer's door a growing stream of useful commodities which lightened his toil and raised his scale of living.

Welfare of labor.— It is difficult to generalize about conditions in the United States during this period, for they differed widely from time to time and from place to place. Certain broad distinctions may, however, be noted. Wages tended to become higher as one moved from the Atlantic seaboard to the Mississippi Valley. Three great belts may be distinguished along which the population was moving westward. In the northernmost one, stretching from Massachusetts to Illinois, rates were highest, while they were lowest in the southern belt which extended from the Carolinas to Louisiana. At the beginning of the century, wages for skilled labor ranged from between \$10 and \$14 a month with board in Massachusetts, to \$1 a day for boatmen on the Mississippi. Slaves were rented out by their owners for \$80 a year with board, which may be regarded as a typical wage in the southern belt.

Writing in 1836 Chevalier commented on "the appearance of general ease in the condition of the people of this country," and at the close of the period a competent English observer wrote of the absence of pauperism in the United States and the universal appearance of respectability. Wages were, however, generally reduced as a result of the panic of 1837 and the seven-year long depression which followed. The rise in prices which began in 1843 at first had the effect of increasing the cost of living to the working classes, but the general industrial expansion which characterized this period made employment general and ultimately led to improved conditions. Wages rose between 1840 and 1860, and while prices also increased, they did not do so in the same proportion. According to the Aldrich report, if wages and prices in 1840 be stated as 100, relative wages in 1860 were 121.2 and relative prices 101.5, indicating a relative improvement in the economic status of workingmen equivalent to about 20 per cent.

These broad generalizations are likely to be misleading, however, for they leave out of account unemployment and the tragic results of fluctuations in the business cycle which bore with undue severity on the working class. During periods of rising prices and prosperity the increased cost of living tended to absorb the gains from higher wages, while during periods of falling prices and business depression the decrease in cost of living was offset by unemployment. The skilled handicraftsmen suffered from the increasing competition of machinery, and all labor on the Atlantic seaboard felt the depressing effect of immigration. On the whole the living conditions and the real wages of labor were better in 1860 than they had been in 1800, but the claim of labor for a proportionate share in the increased wealth of the nation was far from being realized.

Condition of the farmer.—The economic position of the American farmer during this period was one of increasing prosperity, interrupted only temporarily by banking troubles, by panics, or by crop failures. The building of internal improvements was furnishing sections of the country with better means of transportation and affording access to markets. The spread of cotton culture brought in large profits to Southern planters and provided an outlet for Northern produce, while the growth of manufactures contributed also to the development of a home market. The life of the settlers in the new West was not very different from that of the early colonists in the Eastern States.

A rude abundance of the necessities of life was everywhere to be found, and a generous hospitality was remarked by travelers as a characteristic of the people. Bread-stuffs—wheat and corn—were plentiful and cheap. Game was abundant, and cattle and hogs multiplied rapidly and foraged for themselves in the woods, so that animal food was a usual article of diet. The settler's garden furnished him all the vegetables necessary for his table, with little attention on his part; there was usually a superfluity of potatoes,

squashes, melons, and other common vegetables. Tomatoes, curiously enough, were grown as ornamental shrubs under the name of "love apples," but were not eaten until about 1830, as they were generally supposed to be poisonous. Apples, peaches, pears, and other fruits were fairly plentiful, but were of poor quality.⁵ Salt and iron alone were scarce, and, in the prairie region, wood; elsewhere it was abundant. Clothing was of homespun, and in the outlying districts often of leather and skins. Where the population was dispersed, the life of the settler was often lonely and marred by the prevalent malaria. But these were temporary hardships, to be endured for the sake of the certain increase in the value of the land and the satisfaction of being one's own master.

Summary : Sectional divergence.—The most striking characteristic of this period was the growing sectional divergence of North and South. The East was developing its manufactures and finding a rapidly expanding market for them in the growing population of the West, while this section was exchanging for these its surplus agricultural products. East and West were rapidly becoming economically integrated and forming together a region that was already almost self-sufficing. The South, on the other hand, while she purchased large quantities of food-stuffs and agricultural products from the West and furnished cotton and other staples to the East, was separated by her "peculiar institution" from intimate social and political relations with the rest of the country. The sectional divergence reached a crisis when the expanding plantation slave system reached out after more land, which the people of the North determined should remain "free soil."

⁵ Mrs. Trollope, in her unfriendly *Domestic Manners of the Americans*, writes as follows of her experience in Ohio: "All the fruit I saw exposed for sale in Cincinnati was most miserable. I passed two summers there, but never tasted a peach worth eating. Of apricots and nectarines I saw none; strawberries very small, raspberries much worse; gooseberries very few and quite uneatable; currants about half the size of ours, and about double the price; grapes too sour for tarts; apples abundant, but very indifferent; none that would be thought good enough for an English table; pears, cherries, and plums, most miserably bad."

Summary : Material development.— The system of protection to manufacturing industries was early adopted as a conscious policy by the American people, especially after the embargo and the War of 1812 had forced them to begin manufacturing for themselves. As the South, condemned by the inefficiency of slave labor to a primitive culture, could not hope to develop manufactures for herself, she naturally objected to paying higher prices to help Northern manufacturers. Thus the tariff first brought to a head the sectional differences, which were later to become so serious, between the slave and the free States.

As yet, however, the country was too new and undeveloped to permit the growth of a purely industrial state ; the westward movement was the indication of a national impulse to appropriate and exploit the wealth of a virgin soil. The purchase of Louisiana Territory gave a definite aim to this movement, although it did not initiate it. Hand in hand with the settlement of the Western lands went the improvement of the means of transportation. So important was this that both Federal and State governments lent their aid to building turnpikes and canals, but, after some rather disastrous experiences with these, left to private corporations the task of providing the country with railroads. Protection to American industries and the development of internal improvements were the two parts of the "American System," which engaged the energies of the nation during this period. Capital and enterprise began to be diverted from foreign trade to internal development, and the first stage in the decline of the ocean merchant marine commenced. On the whole, it was a period of extraordinary material development, in which the exploitation of its natural resources became the definite aim of the people of the United States.

SUGGESTIVE TOPICS AND QUESTIONS

1. What was the attitude of the factory owners in this period toward wages and hours of labor ? [H. B. Fagan, *American Economic Prog-*

ress, 494 ; J. R. Commons, et al., *Documentary History of American Industrial Society*, V, 81, 155, 309, 314.]

2. Explain this statement : "The movement of wages alone, unrelated to prices, means little." Make clear the expression, "real wages."
3. Compare the condition of the skilled artisan or of the unskilled laborer in 1836 with that of a similar worker in 1936, and tell in which period you think he was better off, and why.
4. Did the worker of the earlier period have as good a chance of becoming his own master as the worker of today or did he have a better chance ?
5. What were some of the forces that broke down the colonial class distinctions, and made the society of this period more democratic ?
6. Do you think the right to vote should be restricted to the owners of property ? Why or why not ?
7. What, in your opinion, is the strongest argument against imprisonment for debt ?
8. Explain what is meant by a mechanics' lien law.
9. Draw up a list of arguments for free public schools.
10. How do you account for the disadvantageous legal position of women during this period ?
11. From what you have read would you agree with Mackenzie's characterization of Americans ?
12. Do you think the young people of 100 years ago had as good a time as those of today ?

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Part IV—Appropriation and Exploitation (1860–1914)

CHAPTER XXI

THE APPLICATION OF MACHINERY TO AGRICULTURE

During the Civil War the first problem was that of raising sufficient food ; this was answered very differently in the North and the South. After the war the problem was one of readjustment, but this also was very unlike in the two sections. The difficulties were enhanced by the too rapid taking up of new land and of consequent overproduction, which gave rise to still other problems.

Effect of the Civil War.—The period from 1860 to 1914 was characterized by the entrance of the United States into the world's markets as the chief source of supply of food products and of raw materials for Europe. During that time the United States assumed the leading place as a producer and exporter of bread-stuffs and grains, as she had already of cotton and tobacco. The Civil War affected the agricultural development of the country both directly and indirectly. As a result of the war demand for agricultural products, prices rose rapidly and production was greatly stimulated. At the same time the organization of great armies withdrew thousands of men from the farms and diminished the labor supply, a loss which was but partially made up by the immigration from Europe. One result of the scarcity of labor was the application to agriculture on an unprecedented scale of labor-saving machinery. It has even been asserted that the issue of the Civil War was decided by the invention of the reaper. The number of two-horse

reapers in operation throughout the country, in the harvest of 1861, was estimated to have performed an amount of work equal to about a million men. The ultimate victory of the North was no doubt largely due to the fact that during the war the gathering of the harvests and the development of the Northwest proceeded uninterruptedly. For instance, the wheat production of Indiana increased from 15,000,000 bushels in 1859 to 20,000,000 in 1863, although one-tenth of its adult male population was in the army. In 1865 it was estimated that there were not less than 250,000 reapers in use in the United States, each of which would cut an average of ten acres in a day of twelve hours. On the other hand, the greatest blow struck the South was the establishment of a naval blockade which prevented the marketing of her great staple, cotton.

Growth of the grain States.—The population of the grain States (*i.e.*, the North Central division) increased during the decade 1860-70 by more than 42 per cent, and in the next decade by nearly 34 per cent; this represented an addition to the population in twenty years of more than 8,000,000 inhabitants. The opening of new land to settlement stimulated immigration to such an extent that 2,500,000 persons came to the United States during the decade 1860-70, to be followed in the next ten years by 3,000,000 more, a large proportion of whom settled in the Middle West. The greatest growth took place in the newer States of the Northwest, although even in the older States, like Illinois, Iowa, and Missouri, the increase was more rapid than the general rate. In the single decade 1870-1880 more than 190,080,000 acres, or a territory equal in extent to Great Britain and France combined, were added to the cultivated area of the United States. Again, in the twenty-year period, 1880-1900, there were added to the farm area over 303,000,000 acres, or a territory equal to the rest of Europe, with the exception of Spain. Between 1900 and 1910 the addition to the farm area was only 40,000,000 acres, an area, however, more than equal to Spain.

Such a development was made possible by the extension of the railroad system in the grain region, which opened up new areas of cultivation and made it possible to market the product speedily and economically. A powerful influence leading to the settlement of the spring wheat section of the Northwest was exerted by the introduction in the early seventies of the "new process" of reducing wheat to flour. Iron and porcelain rollers replaced the old millstones, the grain being run through a half-dozen sets of rollers. Whereas previously the flour made from spring wheat had been of inferior grade, it was now rendered superior to that made from winter wheat ; consequently the price of spring wheat advanced and greatly stimulated the wheat-raising industry of that section. Between 1870 and 1880 the population of Minnesota and the Dakotas, where it was chiefly grown, increased from 453,887 to 915,950.

The Homestead Act.—The passage of the Homestead Act in 1862 made easy and profitable the acquisition of a farm home, especially for those with little capital. The fundamental principle of the act was the grant of a free homestead not exceeding 160 acres to the actual settler ; after five years' residence the title passed, without charge, to the "homesteader." As a result of this law thousands of people took up the free land of the Middle West, more than 65,000,000 acres being given away to individuals during the twenty-year period 1860-80. This act was the logical outcome of the pre-emption system and has since been the accepted policy of the government in disposing of public lands. The settlement of the public domain was further stimulated by modifications of the Homestead Act, making it easy for ex-soldiers of the Union armies to acquire title to government land, and by the rising tide of immigration. So rapid was the settlement of free land that by 1890 the "frontier" had entirely disappeared and there was practically continuous settlement from ocean to ocean. Of the Homestead Act the Public Land Commission said :

It protects the government, it fills the States with homes, it builds up

communities and lessens the chances of social and civil disorder by giving ownership of the soil, in small tracts, to the occupants thereof. It was copied from not other nation's system. It was originally and distinctly American, and remains a monument to its originators.

Another important measure in connection with the disposition of the public domain was the Morrill Act in 1861. This provided for the grant of lands to establish state colleges of agriculture, which did much during this period to carry on agricultural research and to train farmers in scientific methods.

Number and production of farms.—The increase in the number of farms, from 2,044,077 in 1860 to 4,008,907 in 1880, and to 6,361,502 in 1910, resulted partly from the inclusion in the farm area of hitherto uncultivated lands and partly from the subdivision of existing farms; the former was true principally of the West, the latter of the South. This was a rate of growth more rapid than that of the population. Accordingly, the agricultural population was much better provided with separate farms at the end of this period than at the beginning; between 1850 and 1900 the proportion of farms to the rural population increased from 1 farm for every 14 persons to 1 farm for every 9 persons. This gain represented both the subdivision of old farms and the taking up of new land. The average size of farms declined between 1850 and 1880, as a result of the more intensive farming in the Eastern States and of the division of the large Southern plantations after the Civil War. After 1880 there was a slight increase again in the size of farms (from an average of 133.7 acres in that year to 138.1 acres in 1910), as a result mainly of the inclusion in the census reports of the grazing ranches of the Southwest.

The addition of such a vast area to the improved farm lands—more than 533,000,000 acres between 1860 and 1910—and the accompanying expansion of production, were not without their disadvantages. Although the United States thereby obtained a leading position as a producer and exporter of food-stuffs, there were involved the partial disor-

ganization of agriculture in the Eastern States and discontent in the West itself. So eager were the settlers to acquire land on such favorable terms that the taking up of farms proceeded more rapidly than was justified by the economic demand for the products they raised. There was thus a great over-production, especially of wheat, and prices were much depressed. In many cases, perhaps the majority, crops were grown at a loss, the rise in the value of the land being counted as the real reward. The result was naturally an over-supply of farm products, with consequent low prices, which seriously affected land values and production in the older sections of the country and led to a vast amount of discontent among Western farmers. This found expression in a series of farmers' movements beginning with the Granger movement of the early seventies and ending with the Populist movement in the early nineties.

The increase in the production of the six principal cereals during this period is shown in the following table :

PRODUCTION OF CEREALS, 1860-1910 (IN THOUSANDS OF BUSHELS)						
YEAR	Indian Corn	Wheat	Oats	Barley	Rye	Buckwheat
1860	838,792	173,104	172,643	15,825	15,540	17,571
1880	1,754,861	459,479	407,858	44,113	19,831	11,817
1900	2,666,324	658,534	943,389	110,635	25,569	11,234
1910	2,552,190	683,379	1,007,143	173,344	29,520	14,849

Ownership of farms.— More disturbing, however, than the expansion of the farm area was the question of farm tenure. In 1880, for the first time, statistics of farm ownership were published in the census, when the gratifying result was revealed that three-quarters (74.5 per cent) of the farms in the United States were operated by their owners. After that the proportion fell considerably, to 71.6 per cent in 1890 and 62.1 per cent in 1910, and alarm was expressed that our democratic conditions of land ownership were giving way to a system of tenantry. Such a conclusion, however,

seems to have been unwarranted, for the growth of the tenant class indicated rather the endeavor of farm laborers and persons of small means to make themselves independent, than the fall of owners to the rank of tenants. This is shown by the growth in the number of farm owners, more rapid even than the increase in the agricultural population. The greatest increase in tenant farming was in the South, where the large plantations were being broken up and cultivated by small cash or share tenants.

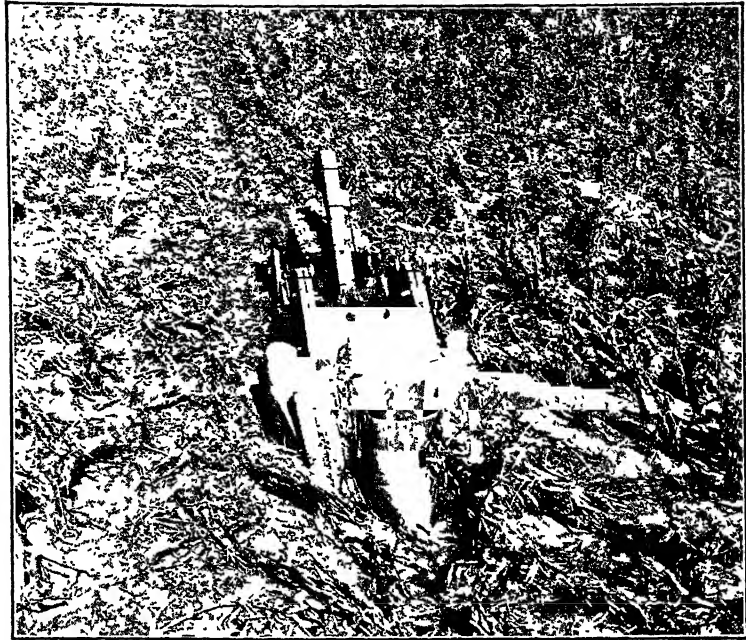
The division of the plantations of the South and of the "bonanza" farms of the West showed the extension of the small farm system rather than the decline of ownership ; a large proportion of the tenant farms in 1900 were under 20 acres. A study of the ages of operating owners, tenants, and laborers strengthens this conclusion. Almost 90 per cent of the farm laborers were under 35 years of age, 67 per cent of the tenants were under 45, while nearly 60 per cent of the owners were over 45 years of age. There was thus, with advancing age, a steady rise from the condition of laborer to tenant and finally to that of owner. Nor did the existence of mortgage indebtedness warrant any gloomy foreboding ; taken in connection with the other facts it must be held to represent the struggle of the former tenant to purchase an equity in the land he tilled, or of the small owner to provide himself with the necessary capital for improvements.

Regional specialization.—With the change from self-sufficing to commercial agriculture there went on increasing concentration on certain great staples best adapted to the different regions. The production of a few staples on a large scale was made possible by improved farm machinery and transportation facilities and ready access to markets ; this specialization in turn stimulated the invention and the application of machinery and the development of large-scale methods. In New England, which felt most severely the competition of the fresh wheat and corn lands of the West, resort was had to a more intensive cultivation in the form

of dairying, vegetable- and fruit-growing, and market gardening, or else the land went out of cultivation. Dairying and mixed farming were found most profitable. Hay and grain were raised on almost every farm throughout the North Central and the Northwestern regions; corn far outstripped all other grains in importance. In the South cotton was the principal crop below the thirty-fifth parallel of latitude, while north of this tobacco, grains, and livestock supplemented but did not supplant cotton. The raising of livestock was the chief industry in the semi-arid region of the Far West, and was also important generally throughout the Northern States. The North Central division constituted the greatest farming section of the country, producing in 1910 half of the agricultural wealth of the country. Within this district Iowa led as our most important farming State, with products valued at \$365,000,000.

Agricultural machinery.—The application of machinery to agriculture, which had begun before the war, was now made on a still more extensive scale, the value of farming implements and machinery increasing from \$246,000,000 in 1860 to \$406,000,000 in 1880, and to \$1,265,000,000 in 1910. It was estimated in 1880 that more than 10,000 patents had been granted in this country up to that time for implements and machines connected directly with the cultivation, harvesting, and handling of grain. Of these the most important were the threshers (first driven by horse power and then by steam), the reapers, and finally the complete harvester.

By means of these improved agricultural machines the average amount of grain that could be harvested, threshed, and prepared for the market, from the standing grain to the marketable product, by a single man per day, was increased from about 4 bushels in 1830 to about 50 bushels in 1880. A few years later Mr. D. A. Wells estimated that the labor of three to four men on the great wheat-fields of Dakota would annually produce, convert into flour, and transport to the seaboard one thousand barrels of flour, or



Courtesy International Harvester Company

POWER PICKERS ARE GREAT LABOR SAVERS

This single-row corn picker is mounted directly on a general-purpose Farmall tractor, and with the tractor forms a compact, self-contained, one-man power-picking outfit. The machine will pick eight to twelve acres of corn in a 10-hour day.

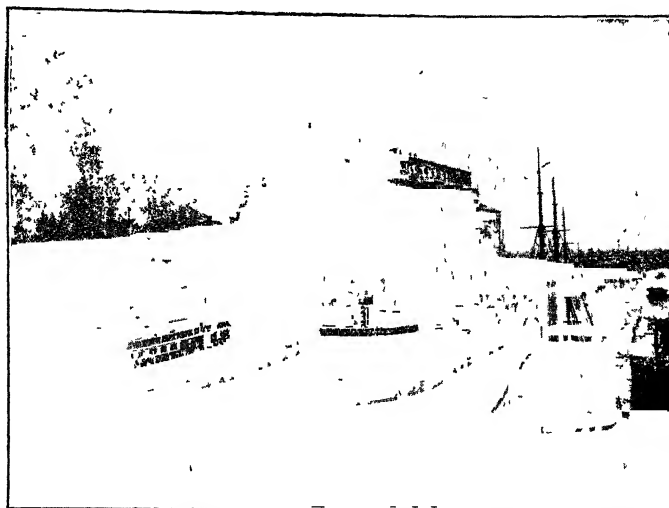
enough for the yearly consumption of one thousand persons. Perhaps the twine binder, more than any other single invention, was responsible for this expansion, for the limit upon production was set by the possibility of harvesting rather than of planting or of growing. The effect on the production of wheat is seen in the growth of per capita production for the United States from 5.6 bushels in 1860 to 8.7 bushels in 1900. At the same time the cost of wheat bread to the consumer was greatly cheapened.

The greatest development took place on the enormous farms of the Far West ; here were used enormous fifty horse-power steam traction engines to operate plows, har-

rows, drills, harvesting machines, etc. But in the Middle West the progress was no less rapid, and the work of planting, cultivating, and husking corn was carried on by machinery ; particularly important in this connection was the "check rower" which allowed the planting of the crop in rows running in two directions, thus permitting cross-cultivation. Mowing machines, horse hay-rakes, tedders, and stackers revolutionized the work of making hay ; while potato planters and diggers, feed choppers, and grinders, manure spreaders, ditch-digging machines, and innumerable other implements greatly lessened the hand labor required.

The introduction of power machinery had many far-reaching results. It greatly increased the efficiency and mental activity of the workers, and at the same time lessened the physical strain upon them. It has been estimated that in the case of nine of the more important farm crops, in the production of which machinery was much used, the average increase of efficiency between 1830 and 1895 was nearly 500 per cent. Machinery increased the output of farm products; this caused a fall in the price of farm products, and the lessened cost of food benefited all classes ; the progressive farmers did not suffer materially from the smaller price per unit, as this was offset by the larger output. The increased output and the lower prices also brought about a redistribution of the working force of the country. Not being needed on the farm, the farmer's children moved to the city and devoted themselves to other occupations. It has been said that the American farmer during this period was a miner rather than an agriculturist ; that he extracted the wealth from the soil without again restoring the lost qualities. With the increased use of farm machinery and the large capital investment required, the modern farmer might fairly be regarded as a manufacturer ; agriculture was becoming more of a business and less an art exposed to the caprices of nature.

The motive power for most of this machinery was that of the horse or the mule; accordingly the increase in the



GREAT NORTHERN ELEVATOR AND SHIPPING, BUFFALO, N. Y.

Elevators are used for storing grain until it is wanted for use. The larger modern elevators consist of huge steel tanks or bins, with a capacity of 500,000 to 1,000,000 bushels. They are usually built by the water and with rail connections, as shown above, so that the grain may be shipped either by water or by rail. The vessel at the extreme left in the foreground is a whaleback, a type which has disappeared from the Great Lakes.

number of these animals proceeded *pari passu* with that of farm machinery. There were in the United States in 1900 more than 24,000,000 horses and mules on the farms alone ; whereas, including those in the towns, there were in Germany only 4,184,000, in France 2,903,000, and in Great Britain 2,000,000. "The agricultural supremacy of the United States," wrote Professor Leroy-Beaulieu, "has been won through the combined use of machinery and domestic animals to turn into wealth the fertility of a virgin soil."

Hardly less important than the invention of agricultural machinery were the improvements in the methods of transporting and handling the grain. As long as it remained in the farmer's hands the grain was carried entirely by hand in bags or sacks and was moved by teams. After it left the farm it was handled and carried in bulk by steam power. A

system of grading and classification was established by which all specific lots of a certain grade were dealt with together in bulk, in the most economical manner. The use of elevators for transferring or storing grain made it possible to unload and to elevate the grain, in the best establishments, at the rate of a carload a minute ; vessels were loaded in turn from the elevators at the rate of 8000 to 10,000 bushels an hour. The use of such unique methods alone made it possible to handle the growing grain trade in the country.

Growth of the international grain trade.— One result of the great movement of grain by steam was the better distribution of the world's grain supply. Before that a short crop in any country meant dear bread in that place, if not famine, but now the shortage of one country was quickly made up by the surplus of another. The exportation of bread-stuffs by the United States did not begin on a large scale until after 1860, but during the Civil War the exports increased enormously, partly because the cutting off of the market in the Southern States threw a large surplus into the channels of foreign trade. The following decade disclosed an even more astonishing growth. As the increase in cereal production was twice as rapid as the growth of population, a large exportable surplus was grown each year. The exports of wheat and corn — the only two cereals sent abroad to any extent — are shown in the following table :

CHIEF EXPORTS OF CEREALS. AVERAGE FOR FIVE-YEAR PERIODS		
YEARLY AVERAGE	Wheat and Flour * (bushels)	Indian Corn and Corn Meal † (bushels)
1857-1861.....	28,970,000	6,558,000
1867-1871.....	35,232,000	9,924,000
1877-1881.....	133,263,000	88,190,000
1887-1891.....	115,529,000	54,606,000
1897-1901.....	197,427,000	192,531,000
1907-1911.....	116,138,000	56,568,000

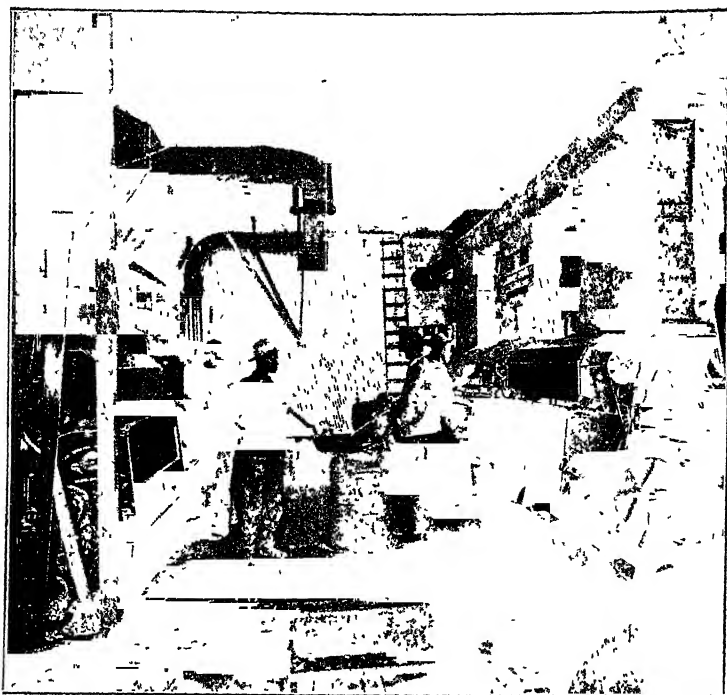
* Flour converted to grain at rate of 5 bushels to a barrel, 1857 to 1879 ; 4½, 1880 to 1911.

† Including meal in terms of grain (4 bu. of corn to 1 bbl. of meal).

One interesting change took place in the exports of wheat — whereas in 1830 flour constituted 99 per cent of the total wheat exported, by 1880 it had fallen to less than 25 per cent. This change was due largely to the protection given by various European countries to the milling interest. As a result most of the American flour still exported went to the West Indies and to the South American countries. The United States was already the most important wheat-exporting country in the world, supplying about half the needs of wheat-importing nations. Russia, Austria-Hungary, and Turkey were the other most important wheat-growing countries, while Great Britain, Switzerland, Italy, and Belgium were our best customers. Of Indian corn only 5 per cent of the total crop was exported, the rest being used chiefly as a feed crop at home.

Failure of the plantation system in the South.— Under the system of slavery a large part of the capital of Southern planters which would otherwise have taken the form of improved lands, buildings, and machinery had been invested in slaves. The 3,953,760 slaves in the South in 1860 were valued at \$2,000,000,000 ; in the planting States this form of property greatly exceeded all others, both real and personal. The Civil War not only swept away this form of property, but resulted in the destruction of buildings, tools, cattle, and other capital. The high price of cotton, however — 43 cents a pound in 1865 and 30 cents in 1866 — encouraged the planters to revive its production. Many borrowed the necessary capital, thus introducing on a large scale the system of agricultural credit which was afterwards so characteristic of Southern agriculture, and proceeded to raise cotton with hired labor.

This had two unfortunate results : in the first place, there was an over-production of cotton, causing a rapid fall in the price ; in the second place, it led to a revival of the old one-crop plantation system, with its concentration on cotton. The wage system which was thus inaugurated was found to be utterly unsatisfactory, as the freedmen were quite irrespon-



A MODERN COTTON-GIN

Gin houses are built nowadays at railroad centers, where the ginning for the neighborhood is done. A modern establishment contains, in addition to the steam-roller gin, which separates the fiber from the seed, various other devices designed to care for the seeds and lint after separation. But the essential elements of Whitney's original gin still remain, though magnified many times over.

sible. The character of the labor and the falling price of cotton, in addition to the burden of over-taxation under the carpet-bag governments, caused the ruin of many planters, and vast areas of land went out of cultivation. "Plantations that had brought from \$100,000 to \$150,000 before the war and even since, were sold at \$6000 or \$10,000 or hung on the hands of the planter and his factor at any price. The ruin seemed to be universal and complete, and the old plantation system, it then seemed, had perished utterly and

forever.”¹ The total value of farming lands in the South declined more than 48 per cent between 1860 and 1870.

The era of small farms.—An era of small farms followed the failure of the large plantation system under free labor, and the large land holdings were broken up to suit small purchasers. Many of the white yeomen and a few Negroes purchased farms of ten to twelve acres, and proceeded to raise cotton on their own account. In Mississippi, for example, there were but 412 farms of less than 10 acres in 1867, and 10,003 in 1870; the number of small farms of less than 100 acres increased 55 per cent in the South during the decade 1860-70, while the average size of farms decreased from 401.7 acres to 229.8 acres.

Nearly 40 per cent of the laborers engaged in the cultivation of cotton by 1876 were whites, as against about 11 per cent before the war. In fact, it was mainly the poorer whites who took over the land relinquished by the large *ante-bellum* planters and began the process of regenerating the South. Most of the land was not bought outright by the small farmer, however, but was worked on shares; the system of cash rents was never widespread. Under these systems the methods of production were gradually improved, fertilizers and improved machinery were more generally used, and the average yield of cotton per acre increased from 172 pounds in 1860 to 222 in 1870. The total yield of 2,275,372,000 pounds in 1860, the last uninterrupted year of production under slavery, was, however, not equaled until 1879, when the product was 2,404,410,000 pounds.

The system of agricultural credit.—Although the method of advancing money and supplies on growing crops was practiced in the South before the war, the necessities of planters after that event made its use characteristic of Southern agriculture. Cotton factors, or middlemen, advanced the capital necessary to revive the production of this staple, themselves often borrowing from commission houses, and taking a crop lien on the growing crop of the planter. When

¹ H. W. Grady, in *Harper's Magazine*, 53 : 721.

falling prices resulted in the breaking up of the plantation system and the rise of a small tenant and freehold farming class, the system was extended. The lender was now, however, the merchant and country storekeeper, who was personally familiar with the small borrower and who could, moreover, exercise constant supervision over the crop. While economically necessary at first as a means of securing the needed capital, this practice of agricultural credit soon resulted in a system of peonage of the debtor farmer to the merchant who became his creditor, under which the debtor was kept almost in a state of serfdom, working for his creditor until his debts were paid. All supplies must be purchased through the creditor, and the crops must be sold through him, on both of which transactions lucrative commissions were charged in addition to frequently usurious rates of interest.

This system had certain undesirable effects. Since cotton was the most marketable crop and would always sell for cash, the lender insisted that the farmer concentrate his efforts upon cotton growing. In the second place, since the farmer was compelled to buy all his supplies from the lender's store, he was discouraged from growing his own corn or bacon since this would diminish his purchases. As Hammond put it, "The raising of corn would not only give a less marketable crop into the hands of the merchant, but it would eventually lose him his customers, for the raising of his own supplies would release the farmer from the necessity of doing business on a credit basis." Diversification of farming and even rotation of crops were thus prevented in the South.

Livestock.—Cattle raising is a frontier industry, and accordingly it has not only been carried on most extensively in the Western part of the country, but it has also been a more important industry in the United States as a whole than in Europe. The so-called "native" cattle, probably the descendants of Spanish cattle brought over by Cortez, had multiplied rapidly in Texas, and after the Civil War



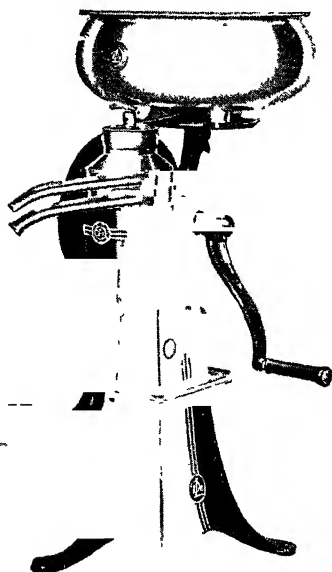
POWER CHURN AND BUTTER MIXER

Butter is made by separating the butter-fat in cream form from the milk serum by the process of churning, which consists in agitating the cream. In the old-fashioned dash churn the motion was largely one of stirring, but the modern churn as shown in the picture secures the result by means of the concussion of the particles upon the sides of the revolving or moving vessel. The latest churns are fitted inside with rollers, by means of which, after the churning and washing, the butter is worked and salted without being removed from the churn.

an outlet for them was sought in the North. It was discovered that if Texas cattle were driven to the Northern ranges they gained in weight more rapidly than if they remained in Texas ; and moreover the beef thus matured was of better quality. By 1870 a clearly defined cattle-trail had been marked out over which an average of about 300,000 cattle were driven northward annually from the breeding grounds in Texas. The points where the cattle-trail crossed the transcontinental railroads became important cattle markets and shipping-points. After 1885 the importance of the cattle-trail began to decline, partly because the taking up of Western land in farms reduced the amount of free range,

but chiefly because the railroads were built into the heart of the cattle country and transported the cattle direct to

market. They were fattened now in the corn-growing regions of Eastern Kansas and Nebraska, Iowa, Missouri, and Illinois.



CREAM SEPARATOR

The invention of the Babcock test, for determining the butter-fat of milk, and of the centrifugal machine for separating cream from milk, by reducing the cost, gave a great impetus to butter making. In such a machine the cream is separated from the milk by centrifugal force—the heavier milk being thrown outward from a rapidly revolving cylinder while the cream remains at the center. In a butter or cheese factory the separators and churns are driven by steam; the old processes of “setting” and “skimming” and of churning by hand have given place to factory methods.

The process of converting this livestock into food for human consumption began its wonderful growth during this period. The invention of the refrigerator car, the first shipment by which from Chicago to New York took place in 1869, gave a wonderful impetus to the slaughtering and meat-packing industry. Pork-packing, which had been done mainly in the winter up to this time, was now possible during the summer. The number of hogs killed grew from 992,310 in 1860 to 11,001,699 in 1880, and to 28,742,551 in 1900. The dressed beef trade, too, was given a stimulus by the introduction of the refrigerating process. The export of fresh beef dates from 1876, though the exportation of live cattle

had already begun in 1870. The total value of the products in the slaughtering and meat-packing industries

grew enormously, from about \$29,000,000 in 1860 to \$303,500,000 in 1880, and \$790,000,000 in 1900.

Dairy products.—The dairy industry was also revolutionized by the introduction of factory methods in the making of butter and cheese, although a beginning had been made before the Civil War. Cheese-making developed rapidly under the factory system during the sixties and seventies, and by 1880 more than four-fifths of the cheese produced in the United States was made in factories. There were natural limits to the expansion of the industry, owing in part to the relatively small domestic consumption of cheese, and in part, to the lack of a foreign demand for the American product. After 1880 butter-making displaced cheese as the leading dairy industry. At that time, however, most of the butter was still made on the farms, and the common form of churn in use for butter-making was aptly described by a child's riddle: "Big at the bottom and small at the top, a thing in the middle goes flippety-flop." A great stimulus to the development of factory methods in butter-making was given by the invention of the Babcock test for determining the butter-fat of milk, and of the centrifugal cream separator for extracting the cream without having to "set" the milk and wait for the cream to rise. The center of the butter-making industry came to be located in the corn-belt, Elgin, Illinois, being one of the greatest butter markets in the world. The Americans probably consumed more butter than any other people.

SUGGESTIVE TOPICS AND QUESTIONS

1. Describe the effect of the Civil War on the agriculture of the South. [W. E. B. DuBois, *Souls of Black Folks*, chap. 2 ; Du Bois, *Negro Farmer*, 79-81 ; M. B. Hammond, *The Cotton Industry*, 127.]
2. What was the effect of the increase in the exportation of grain and decrease in that of cotton during the Civil War upon the independence of the Confederate States? [E. D. Fite, *Quarterly Journal of Economics*, XX, 263-7.]

3. What relation, if any, can be shown to exist between the price of wheat and the development of the West ?

4. What were the principal causes of the growth of our grain exports after 1860 ? [Report of United States Commissioner of Agriculture 1862, pp. 66-73 ; 1876, pp. 164-180 ; 1889, pp. 251-264 ; 1891, pp. 228-340.]

5. The average yield of wheat per acre in England was 35 bushels, and in the United States about 15. Why did England import wheat from the United States ?

6. Trace the agitation for the free distribution of the public lands. Do you consider it a wise measure ? [K. Coman, 279 ; T. V. Powderly, *Thirty Years of Labor*, chap. 8.]

7. What was the National Grange ? What good did it accomplish ? [E. W. Martin, *History of the Grange Movement*, S. J. Buck, *The Granger Movement*, W. P. D. Bliss, *Encyclopedia of Social Reform*, art. Grange.]

8. What were the grievances of the farmers that led to the so-called Granger movement ? What remedy was sought ? [W. G. Moody, *Land and Labor*, chap. 3, Martin, *History of Grange Movement*, part 6.]

9. Why was there such wide-spread discontent among the farmers about 1890 ? [Report Industrial Commission, VI, 36-143, 225-268 ; W. A. Pfeffer, *Farmer's Side* ; J. R. Elliott, *American Farms*, books 2, 3.]

10. Sketch the history and the demands of the Populist Party. [Pfeffer, *Farmer's Side* ; F. L. McVey, *The Populist Movement* ; W. D. P. Bliss, *Encyclopedia of Social Reform*, arts. Farmer's Alliance, Farmer's Movement, People's Party.]

11. How long would it have taken to harvest the crops of 1900 with the hand implements in use 75 years before ? [13th Annual Report United States Bureau of Labor Statistics ; H. N. Casson, *The New American Farmer*, in *Review of Reviews*, XXXVII, 601.]

12. Was the change in the proportion of farms to the non-urban population from one farm to 14 persons in 1850 to one farm to 9 persons in 1900 due to an increase of farms or to a decrease in the farming population ? [Census (1900), vols. I, V.]

13. What effect, if any, did the introduction of farm machinery have upon the character of farm labor ?

14. Trace the history of the flour milling industry. [Pillsbury, *American Flour*, in C. M. Depew's *One Hundred Years of American Commerce*, I, 266-273 ; *Encyclopedia*.]

*15. Describe the growth of the pork-packing and the dressed beef industries. [Armour, *The Packing Industry*, in *Depew's One Hundred Years of American Commerce*, II, 383-388, United States Agriculture Reports, 1853, p. 50 ; 1863, p. 207 ; 1875, p. 96 ; 1876, p. 312 ; 1877, pp. 374-382 ; 1881, pp. 613-614 ; 1889, pp. 69-74 ; 1891, p. 318.]

16. One often reads advertisements of "corn-fed" pork or "milk-fed" chickens. Why are these kinds of food emphasized? How would the animals be fed if not in this way? Does the feeding make any difference in the product?

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 White, Stewart E., *The Rose Dawn*. The transition from great ranches to small farms. 1880-90.
 Wilson, Margaret, *The Able McLaughlins*. Pioneer Scotch families in the Middle West in the 60's.
 Wister, Owen, *The Virginian*. Cattle raising in Wyoming. 1870-90.

CHAPTER XXII

THE EXTRACTIVE INDUSTRIES

The extractive industries were dealt with during this period as a problem in the rapid exploitation of the natural resources. The normal progress of manufactures created a steadily increasing demand for the products of field and mine and forest, which had to be met. But the owners of the natural stores of mineral and forest wealth wished to realize upon their possessions as speedily as possible, sometimes, it seemed, with little regard for existing demand. Serious problems arose out of this situation.

The spirit of the period.—The period ushered in by the conclusion of the Civil War was one of rapid settlement of the public domain, extension of railroad lines across the continent, and expansion of manufacturing industries on a national scale. For all these things raw materials in great quantities were needed, and in response to industrial demand the natural resources of the country were appropriated and developed on a grand scale. Like the Spanish *Conquistadors* of three centuries earlier, bold adventurers led the way to the seizure and the exploitation of the stored-up wealth of a continent. It was a period of unregulated *laissez-faire*, operating in a field whose resources seemed limitless and which offered great rewards for those who could gain possession of them. Rapid expansion and remarkable achievements characterized this period, but the methods followed were those of the pioneer — ruthless, wasteful, and with little regard for the future.

The appropriation of the public domain of the country and the utilization of the agricultural resources have already been discussed, so that in this chapter attention will be directed mainly to the mineral resources.

The mineral industries.— The extractive industries exploit directly the natural resources of a country. This development will be determined at any time by their extent, by man's ability to extract them, and by the stage of the arts for which they form the raw materials. The United States is wonderfully blessed in the possession of vast stores of mineral wealth, tin being almost the only one of the important industrial metals not present in abundance. Before 1869 this mineral wealth either was not discovered or was used to only a limited extent. The great demand came only with the development of manufactures after the Civil War, the period 1860-1910 witnessing the first great exploitation of our mineral wealth.

In the production of the three mineral products which are most essential to modern industry — coal, iron, and copper — the United States leads all other nations ; it also stands first in the production of petroleum, silver, lead, zinc, phosphate, and sulphur, and second in the production of gold. According to a report of the Geological Survey, "The only essential minerals of the first rank of which the United States has no known supply at all commensurate with its needs are nitrates, potash salts, tin, nickel, and platinum, the list thus comprising two essential mineral fertilizers and three very useful metals. Probably no other nation in the world so nearly approaches absolute independence in respect to mineral resources."

In 1899, for the first time, the total value of the commercial mineral production was more than \$1,000,000,000 ; by 1910 it exceeded \$2,000,000,000, in 1920 it amounted to more than \$6,983,000,000, but in 1930 it had fallen to \$4,765,000,000. While the total value of the mineral product lags far behind the values of agriculture and of manufactures, the rate of increase has been much more rapid. Two-thirds of the mineral wealth was obtained from the Northern States, and especially from those sections where coal and petroleum were found. The most important mining States, in order of output in 1930, were : Pennsyl-

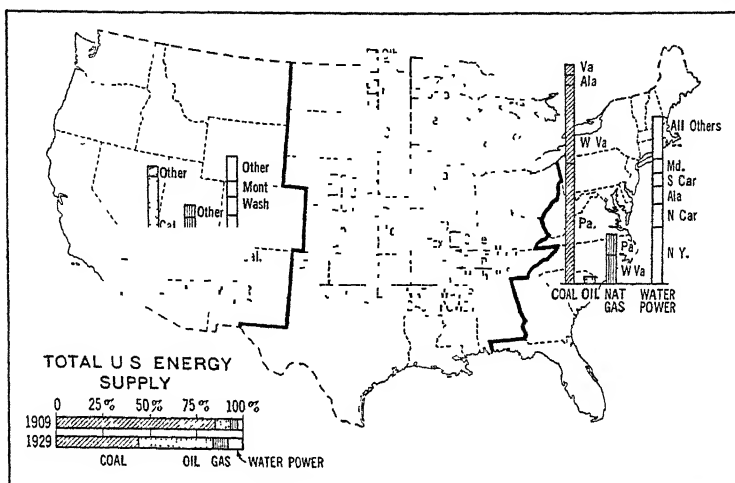
vania, West Virginia, Minnesota, Illinois, Arizona and Kentucky.

The following table shows the growth of the mineral industries since 1900 :

SELECTED MINERAL PRODUCTS OF THE UNITED STATES, 1900-1930 (IN THOUSANDS)				
PRODUCT	1900	1910	1920	1930
Coal, long tons	263,537	449,845	636,063	536,911
Iron ore, long tons	27,553	56,890	69,558	75,603
Copper, pounds	606,117	1,088,237	1,209,061	1,394,389
Gold, fine ounces	3,830	4,657	2,395	2,286
Silver, fine ounces	57,647	57,138	56,565	50,748
Petroleum, barrels . .	63,620	209,556	443,402	898,011
Lead, short tons . .	101	249	477	574
Zinc, short tons	124	252	450	489

"Iron and coal," says Trotter, "more than any other mineral substances, are the basis of a nation's prosperity, and with a fertile soil form the tripod upon which modern civilization rests." Considered as a whole, the fertility of the soil of the United States is remarkably great, as has been indicated in previous chapters. The same is true of the mineral resources of the country. Indeed the wonderful industrial advance of the latter half of the nineteenth century must be attributed, in large part, to the extent and the richness of these natural resources upon which have been built up the manufacturing and transportation industries.

Coal.—Coal had been used as a domestic fuel and to a limited extent in manufacturing since the beginning of the century, but in 1860 the per capita consumption amounted to only half a ton a year. Its more general use had to wait for improved means of transportation and handling, and especially for the new processes and appliances which created so great a demand for smelting purposes, for fuel of railroads, steamships, and power plants, for producing gas, and for numerous other uses. Most of these were not perfected or in general use until after the Civil War. The coal-burn-



ing locomotive firebox was developed only shortly before 1860. Coal gas was first produced in Boston in 1821, but was not used on a large scale until the growth of manufactures crowded the population into large cities. Wood was still used as fuel more generally than was coal throughout the country. After 1860, however, the production and use of coal grew rapidly, from 14,333,922 short tons in 1860 to 263,537,020 in 1900, and 536,911,136 in 1930. By 1880 the United States turned out 21 per cent of the world's production of coal, being surpassed only by Great Britain; by the end of the century we ranked first.

According to the United States Geological Survey there are 335,000 square miles of coal-bearing strata in this country, but much of it is too thin or impure to be available for industrial use. It serves, however, in many localities as domestic fuel, and few places in the United States are far removed from burnable coal. By far the greatest part of our available supply is bituminous, the area which is underlaid with anthracite being less than 500 square miles. The coal deposits are far from equally distributed throughout the country, the greater part of the coal-producing area being

found along the Appalachian mountain chain and in the states of Ohio, Indiana, and Illinois. In 1900 about 70 and in 1930 over 78 per cent of all the coal mined was taken from the Appalachian field. Practically all of the coal mined was used at home, less than 3 per cent being exported.

Petroleum and natural gas.—Of immense importance both industrially and socially was the discovery of petroleum. Until its introduction the tallow or spermaceti candle had been the almost universal source of artificial light. The existence of oil had long been known in New York, Pennsylvania, and Ohio, and oil had been sold for medicinal purposes under the name of "Seneca oil," but the first well was not drilled until 1859. From 2000 barrels in that year, valued at \$29 a barrel, the production rapidly increased to 3,000,000 barrels in 1862, when it sold as low as ten cents a barrel, because of over-production and the lack of a widespread demand. At first, the transportation facilities were woefully inadequate to market the crude petroleum, but improvements were gradually made in tank cars, etc. A great impetus was given by the building of pipe lines, of which the first local one was constructed in 1865; the first through line was built in 1875 to Pittsburgh, and in 1880 the first pipe line to the seaboard was begun. Production increased to 26,286,123 barrels in 1880, worth \$24,600,638. Vast quantities were exported to Europe and the Orient, the fourth rank in the exports of the United States being held by the new illuminant. In 1880 the total world production amounted to only 30,000,000 barrels, of which the United States contributed more than five-sixths.

Improvements in methods of production and transportation, and especially the development of new uses for petroleum and its numerous derivatives, such as illuminating oil, lubricating oil, gasoline, naphtha, benzine, and paraffin, gave a great stimulus to the industry. In 1900 the total world output was 149,000,000 barrels, Russia leading with an output of 76,000,000 and the United States taking second place with 64,000,000. In 1930 the United States led the world

with an output for that year of 898,000,000 barrels. New sources of supply were found in southern California and in Texas and Oklahoma, as the older fields of New York and Pennsylvania began to show signs of exhaustion. Indeed the oil industry is constantly on the move as the old wells either give out or have their productivity reduced to an unprofitable point.

A new kind of cheap and clean fuel and illuminant came into use when natural gas was discovered. Although its availability for heating and lighting had been known for a good many years, its use on a large scale dates from about 1870. In the gas belts it was used for manufacturing purposes as well as for domestic heating and lighting. Compared with coal, however, or even with petroleum, natural gas was of minor importance. Of recent years the use of natural gas has greatly increased. Production grew from practically nothing in 1860 to 437,000 million cubic feet in 1910, and to 1,943,000 in 1930.

Water power.—In connection with the extractive industries should be mentioned the amount of water power available for industrial use in the United States. In colonial days this was of chief importance and determined the location of many a town. With the invention of the steam engine and the use of coal as a motive power, industry became less dependent upon water power, but with the rise of electrical appliances and the harnessing of our streams and falls for their service, the value of this item in our national wealth began to be estimated more highly. "It is probable," says Shaler, writing near the end of the nineteenth century, "that, measured in horse power or by manufactured products, the energy derived from the streams of this country is already more valuable than those of all other lands put together."

The most valuable water powers are found east of the Mississippi River and west of the Cordilleran chain. Even in the case of the best water power there are, however, in spite of its cheapness, certain drawbacks: it must be applied where it is found, except as it is used to develop electric

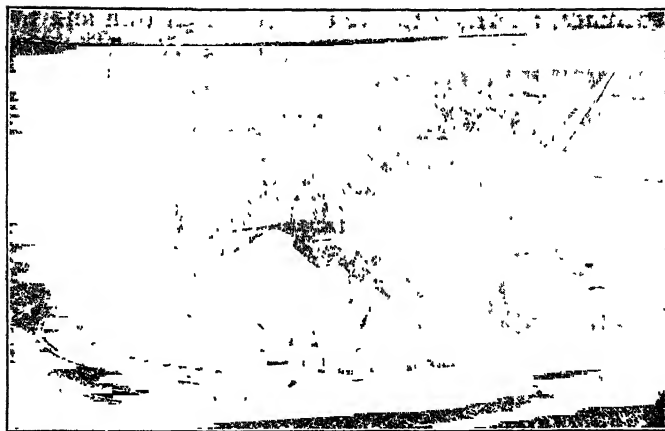
power, and is subject often to serious seasonal limitations. The energy which is obtained from coal, on the other hand, may be developed where it is needed, at any time and to any amount. On this account the presence of coal proved a more important factor than water power in determining the concentration of the population and the regional distribution of industries.

Down to about 1860 water power enjoyed an unquestioned supremacy, and as late as 1870 about as much mechanical power was derived from it as from steam. By 1900, however, only 15 per cent of the power used in manufactures was from water wheels, while 77 per cent was from steam engines. By 1930 the power furnished by water had shrunk to less than 9 per cent.

It is estimated that the potential water power of the running streams in the United States represents the equivalent of 650,000,000 tons of coal burned every year, or about 50,000,000 horse power. If a horse power be calculated as equal to ten times a man power, some idea may be gained of the vast amount of power available for human needs. With the development of electrical devices this power can be harnessed, and transported considerable distances, where it can be used for a great variety of purposes.

Iron ore.—Next in importance to the energy supplies of the United States rank its stores of iron ore. These exist in large quantity and are widely disseminated, though in the main they occupy three great fields. On the East the Appalachian field, which stretches from Newfoundland to central Alabama, contains large deposits of rather impure ore. The deposits of the Lake Superior region are extensive and of remarkable purity, and are so situated that economical methods of mining and transportation to market are possible. In the Cordilleran district there are practically inexhaustible supplies of iron, but because of the absence of coal suitable for smelting, the ore remains undeveloped except for local purposes.

The United States is the largest producer of iron ore in



OPEN PIT IRON MINE

In the Lake Superior iron-ore regions, a steam shovel scoops up the ore from open pits, filling cars at the rate of almost one a minute. The ore is then carried by car to the neighboring shipping ports on the lake and dumped into bunkers, from which it slides down chutes into the hatches of the ore ships. More than 3000 tons an hour are loaded in this fashion. Because of the ease and cheapness of the methods and the purity of the ore, the Lake Superior region is now producing about three-fourths of the iron ore used in the United States.

the world, but so great is the abundance of the supplies that only the richest mines are now being worked. The conditions of iron production in the United States are set forth as follows by Professor Tarr: "An iron ore, in the present state of the iron industry, must occur in a very favorable position as regards market; it must be of good quality and considerable quantity, and favorably situated for extraction and smelting. Iron is now so cheap that, where mining operations are difficult, as for instance, where the mine is deep, the vein narrow, gangue abundant, or transportation difficult, it cannot be mined."

For more than a hundred years Pennsylvania had been the leading producer, but about 1880 the iron ranges of the Lake Superior region began to be opened up on a large scale, from which the ore could be easily extracted and cheaply shipped to market. Until this time ore was obtained from

shaft mines, in which the veins were often thin and the ore of relatively poor grade. The deposits in the Lake Superior region, on the other hand, were not only extremely rich and pure, but they lay almost on the surface so that they could be dug out and transported by the application of improved labor-saving machinery. Consequently the red hematite ores from this district tended to displace the product from the Appalachian field: in 1880 they constituted 32 per cent of the ore mined, in 1900 they were 85 percent, and in 1930 about 95 per cent.

Even more important in promoting the industry was the steadily increasing demand for iron and steel. Every new industry increased the need for these products, and a growing burden was placed upon the iron resources of the country. This is shown by the increase in the production of iron ore from 2,873,460 long tons in 1860 to 6,307,883 in 1880, to 27,553,161 in 1900, and to 75,603,000 in 1930.

Copper.—Next after iron, copper ranks as the most necessary metal in the industrial arts. In primitive civilizations, as among the ancient Greeks or the North American Indians, it was especially valuable because it was easily worked. With the discovery of processes for smelting iron, copper lost its early importance, which it regained only as the result of the development of electrical industries, especially after the invention of the telephone in 1876, the electric arc light in 1880, and similar devices. In 1860 the production of the United States was 16,128,000 pounds, which grew to 60,480,000 pounds in 1880. This was about one-fourth of the world's supply at this time, and already this country was the leading producer. The great expansion of the copper industry belongs, however, to the period after 1880, as a result both of new demands and of the discovery of new sources of supply. By 1900 the production of the United States had grown to 606,117,000 pounds, or ten times as much as in 1880. The development of the electrical industries after this date called for great amounts of this metal, and by 1930 the production was 1,394,389,000 pounds.

The pre-eminence of this country was now greater than ever, for it produced over half of the world's output and exported over half of the domestic production to other countries.

Down to 1880 Michigan was the principal source of supply of copper, about five-sixths of the domestic output coming from there in that year. After this date, however, new mines were opened in Arizona and Montana, and still later in California and Utah. Improvements in the methods of refining, such as the electrolytic process, also made available deposits which previously had been thought unworkable.

Other metals and minerals.—While our industrial development is based chiefly upon the fuels and iron ore there arises also a demand for other raw materials in manufacturing special products. Of greater prominence, because of their use as money, though of subordinate importance in the industrial arts, are the so-called precious metals — gold and silver. The remaining mineral products of broad industrial interest may be classified in three groups: metals, chemical raw materials, and structural materials.

Among the metals of commercial importance not yet mentioned may be enumerated aluminum, lead, zinc, and quicksilver. The production of aluminum first became of importance in the decade 1880-1890, when several great inventions were made. From an output of a few hundred pounds, at a price of five to ten dollars a pound in 1880, the production increased to 7,150,000 pounds in 1900, worth less than twenty cents a pound, and to 119,235,000 pounds in 1935, worth about the same. Lead has a long industrial history, for even in Roman times it was used for many of its present purposes. At the time of the Civil War the United States was producing about 20,000 tons annually, most of which came from Illinois, Wisconsin, Iowa, and Missouri. This production was largely increased in connection with the expanding silver mining, with which lead is often found associated. It is largely a by-product, especially of silver and zinc. Of this last-named metal the United States was one

of the leading producers during this period, and greatly increased its output. Quicksilver was produced in California in considerable quantities, about one-fifth of the world's supply coming from this country.

Under the head of chemical raw materials may be mentioned sulphur, salt, lime, potash, and phosphates. With the exception of potash the United States is well supplied, with these materials, and this period saw a rapid development of their production.

The structural materials comprise the clay products, such as brick, tile, etc.; cementing materials; and building stones. With all of these the United States is well supplied, and the stores are well distributed. The production of all of them, on any large scale, began during this period, though because of their weight and size all but the most valuable varieties were restricted to local markets.

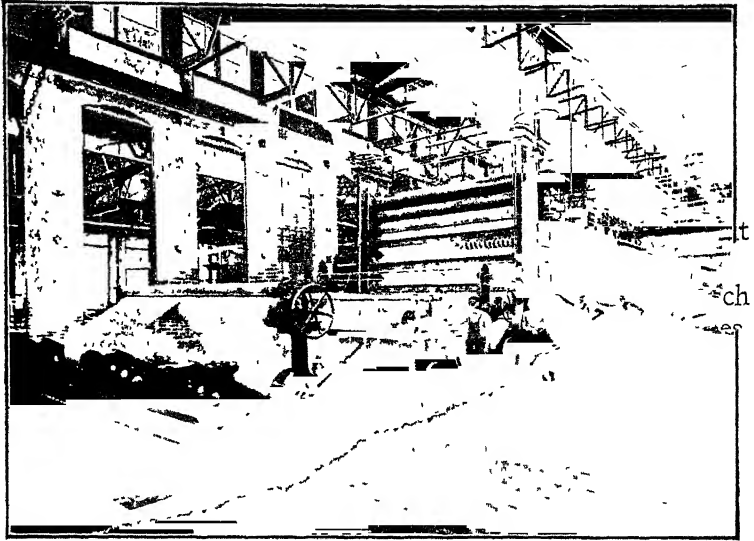
The forest.—The forests of the United States cover an area of about 700,000,000 acres, or more than 35 per cent of the area of the country. Of these by far the greater part is found in the section east of the Mississippi, which originally was a vast continuous forest. In the Northern States there stretched the great white pine forest, from which most of our lumber has come, from colonial days to the present; south of this in a broad belt lies the Southern pine forest, whose most important tree is the yellow pine. In the Mississippi valley are found the hardwood forests of oaks, hickories, ashes, gums, etc. West of the Mississippi stretches a forestless, often treeless, area of millions of acres; with the Rocky Mountains begins again the coniferous interior forest, and still farther west the Pacific coast forest. In this interior section the chief lack has always been water rather than wood.

The early settlers drew upon the forests for food, fuel, and shelter. And yet the dense woods of the Atlantic coast, which had to be cleared before crops could be raised, and which often concealed hostile Indians and animals, were regarded rather as an obstacle than a blessing. Vast areas

were ruthlessly burned down and the land denuded of its forest growth. The lavish waste of one of our most important natural resources persisted almost down to the Civil War. After that time, however, the demand for lumber for railroad building and other purposes greatly increased. Down to 1860 the Northeastern States furnished the greatest part of the supply (55 per cent in 1850), but with the development of the Middle West larger drafts began to be made upon the forest resources of Michigan, Wisconsin, and other Lake States ; between 1860 and 1880 this group ranked first as a source of supply. But the industry had already begun to move into the Southern pine forests, and by the end of the century the Southern States ranked first as producers of lumber. Today the Pacific States have outdistanced the South. As the Northern forests have been exhausted there has been a gradual displacement of hardwood by the conifers, especially by the yellow pine of the Southern States ; about half of the output consists of the various species of pine.

With the practical exhaustion of some of our most valuable forests, as a result of reckless and wholesale cutting, the importance of forestry regulations has become increasingly evident.

Forest policy.— In the census of 1870 for the first time a canvass was made of our forest resources, and the relatively small area of forest became known. Increasing interest began to be manifested, and laws for the encouragement of timber planting were passed by most of the Western States in the seventies. Congress in 1873 joined in this kind of legislation by the passage of the timber culture act, granting to settlers 160 acres of treeless land on condition that they plant and cultivate a certain number of forest trees ; but the act was ineffective. The Federal government began its forest work in 1876 by the establishment of a forest agency in the Department of Agriculture ; the Division of Forestry was created in 1881, but accomplished little because of inadequate appropriations. Because of abuses, the timber culture act



ONE OF THE LARGEST PAPER MACHINES IN THE WORLD

The enormous rolls are of newspaper, manufactured from wood pulp. The United States uses annually nearly two million cords of wood in the manufacture of paper, an area half as large as Rhode Island being stripped of timber to supply the paper mills. Most of these mills are located near the sources of the raw materials.

was repealed in 1891, while the State laws remained for the most part dead letters. The country had clearly not yet awakened to the need of a constructive and far-sighted forest policy. In one respect only had a promising beginning been made in an important direction : this was the establishment of forest reserves, which was inaugurated in 1891, and of national parks. The Yellowstone National Park, which is one of the greatest, was created in 1872 ; the Yosemite and the Sequoia were established in 1890.

In 1898 the Federal government began practical work in the introduction of forestry, which received a great stimulus in 1905, when the care of the national forest reserves, embracing 63,000,000 acres, was transferred to the Department of Agriculture and a separate bureau was organized under the name of the Forest Service. More than 150 professional



Photo by U S Forest Service

ONE OF THE CCC ACTIVITIES

These CCC boys are clearing land for planting pine seedlings in Klamath National Forest, California.

trained foresters were employed who managed the forests on the public lands and co-operated with private owners to introduce scientific forest management. A further step forward was made when Civilian Conservation Camps were established in 1933, the work of whose members was directed largely to reforestation and the prevention of erosion. A beginning has been made also in the introduction of scientific forestry by private owners, especially by large users of wood, such as the railroads. The rise in the price of lumber showed the necessity for a more careful conservation of our forest wealth.

Animal life.—The principal animals, as also the vegetable products, which do not constitute the original resources of the country but are rather the results of man's efforts, have been treated elsewhere under the appropriate headings. In this connection will be noted simply the value of the native fauna. The animal life indigenous to North America had

enormous economic significance to the aborigines, less to the colonists, and has scarcely any to us today. Of all the fauna of native origin the turkey is the only one which has been domesticated. To the Indian the wild game, such as deer, buffalo, mountain sheep, etc., were of greatest economic importance, since they furnished him with food, and the materials for clothing, shelter, weapons, and other necessities. To the early colonist and the fur trader the fur-bearing animals, such as the beaver, squirrel, mink, sable, badger, fox, and weasel, were more valuable. The presence of quantities of game in the neighboring forests was, moreover, of considerable importance to the pioneer, as he was thus able to supply his table and vary his diet with a minimum expenditure of effort. Quantities of edible wild fowl too passed overhead every year, as pigeons, turkeys, prairie chickens, ducks, geese, quail, etc. By the end of the century these had been practically exterminated, or a small remnant only survived under the protection of strict game laws.

The fisheries.—Of far greater importance from an economic standpoint were the fishes, the supply of which was not so easily reduced. The salmon of the North Pacific coast stood easily first among these ; followed by the cod, mackerel, herring, and shad of the Atlantic coast ; and white fish, lake herring, and sturgeon of the Great Lakes. Oysters, gathered by the Indians in immense numbers, still formed the basis of a lucrative industry on the middle Atlantic coast. The exploitation of all these native resources of the United States proceeded recklessly and ruthlessly, and not until near the end of the century was any effort made to conserve and maintain our native animal and fish wealth.

As in the case of the forests, much has been done by the Federal government to make good the loss occasioned by our early wastefulness. Lakes and streams have been restocked with fish and stricter fish and game laws passed, designed to prevent the extermination of the supply.

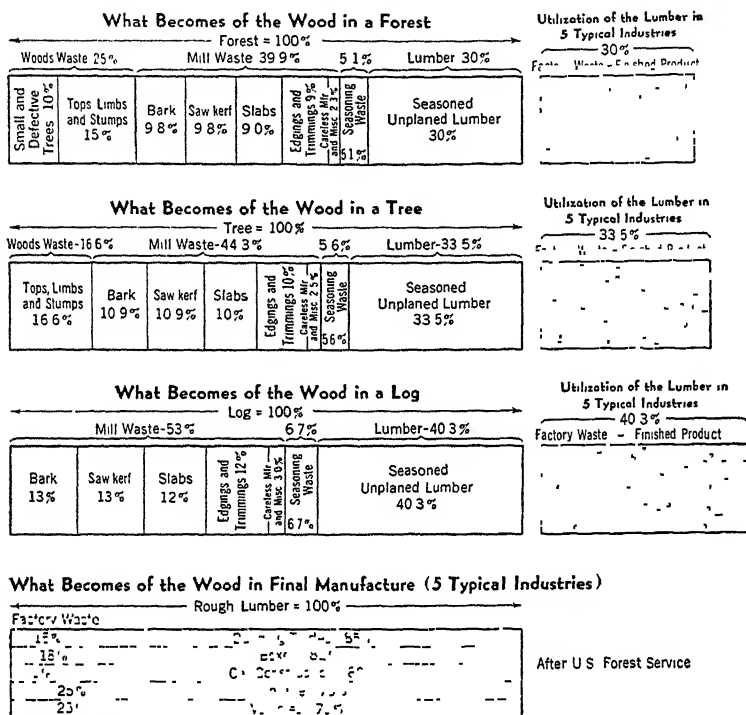
The United States Fish Commission was established in 1871, and the following year began the artificial propagation

of fish, a work which constantly expanded. In 1930 the Bureau of Fisheries distributed 7,570,482,000 eggs, fry, and fingerlings. It was evident that man could not depend upon the bounty of nature alone in this industry, but must himself provide fish culture as inevitably as agriculture.

Our industrial resources.—This brief inventory shows that the inhabitants of the United States are greatly favored by the possession of rich natural resources and favorable conditions. How have we as a people used the splendid heritage which we took over from the aborigines practically undisturbed since the beginning of time? This question has been raised from various quarters. For practically the first time in our history we have paused in our production of wealth officially to take stock of our resources and to query the justification of their present utilization and distribution. Under the lead of the Federal government a dozen commissions have been probing into these problems.

Wastes of modern economic life.—The American nation, bred to carelessness in the midst of plenty, has long been known as a wasteful people, but the disclosures of recent government investigations are positively appalling. So far from our natural resources being inexhaustible, it appears that at the present rate of consumption and under prevailing methods, many of them are rapidly nearing exhaustion. It is estimated that the supplies of available coal will be exhausted in one hundred fifty years; that a century will see the end of our supplies of high-grade iron ore; and that the known copper deposits will last only fifty to one hundred years. In the use of all of these, as at present conducted, there is great waste. The waste in the mining of bituminous coal is sometimes 50 per cent, and more in the case of anthracite; this could be reduced 25 per cent by improved methods. Almost as great is the waste involved in the existing manner of their utilization, through poorly constructed coke ovens, stoves, etc. Iron is carelessly wasted in the form of scrap, instead of being saved for further use. The National Conservation Commission estimated that the waste or losses in

The Use of American Timber



the mining, preparation, and use of the mineral products of this country exceed \$1,400,000 per day.

But not only in the case of the minerals and metals has this process of exploitation been going on. For three hundred years our farmers have been mining the soil and have exhausted its fertility as truly as though they had extracted the elements from a bed of ore. A government report concludes that the fertility of the soil for 50 per cent of the country has been lessened. There are two ways in which this is effected; by erosion, or the carrying away of the soil itself; and by so using the soil that valuable elements are exhausted and not replaced. Indeed it is doubtful whether agricul-

ture, as practiced in the United States, has hitherto been a self-sustaining industry ; that is, whether it would have paid if the elements taken out of the soil by crops had been replaced.

The consumption of the forest is due to two causes — use and waste. The annual consumption of timber in all forms may be put at 100 billion feet, while the annual growth is perhaps 30 or 40 billion feet. Upon these estimates a timber famine in about thirty years is indicated. But not merely does the consumption of timber exceed the present growth, there is also great waste in its utilization ; only three-eighths of the standing tree is estimated to go into the finished article. Forest fires destroy \$20,000,000 worth of timber yearly, while the total destruction of wealth of all kinds from fire is placed at \$450,000,000 a year, of which \$400,000,000 is preventable.

Intimately connected with the foregoing are the wastes occasioned by the misuse or lack of use of our water supplies. The cutting down of our forests has increased floods, which every year sweep off into our rivers \$500,000,000 worth of rich top soil. As a result of this our rivers are choked by silt and made less navigable. At the same time the water power thus generated remains unused. It is estimated that if the flood waters were stored it would be possible to develop 100,000,000 horse power, which would furnish sufficient power to meet the needs of the United States when the population is 250,000,000 people. The release of this power would conserve enormous supplies of coal for such domestic and industrial purposes as only coal can supply.

Finally there is a loss and waste of human life which is more serious than all that have been mentioned. Reports show that one miner is killed and several are injured for every one hundred thousand tons of coal mined. In the operation of our railways in 1920, 1 trainman in every 8 was injured and 1 in every 296 was killed. By 1932, when the best record was made, these figures had been reduced to 1 in 11 and 1 in 350 respectively. Similar toll of human life is

taken in our manufacturing industries, through either accident or industrial disease, both of which are largely preventable. An estimate made in 1935 places the number of accidents occurring annually in the United States at 9,700,000, of which more than 1,000,000 result from automobiles, the latest menace to our safety. It is stated that at a minimum estimate the length of life in this country could be prolonged fifteen years on the average. This would mean not only a diminution of suffering and sorrow, but an enormous addition to the labor force of the country. Dr. G. M. Gould concludes that sickness and death in the United States cost \$3,000,000,000 annually, of which he regards at least one-third as preventable.

Conservation.—We are thus brought face to face with the problem of the better utilization or conservation of our national resources. By this is not meant the locking up of these resources and withholding them from present use, but only their wise and careful use. The problem of conservation differs with each group of resources. In the case of metals and minerals, which are non-replaceable by nature, care is especially necessary. Here conservation means prevention of wastes and more careful use, thereby prolonging the life of existing supplies. Minor reforms would be the substitution of common mineral substances for those being exhausted, where possible; the removal of the tariff on imports and the checking of exports; the painting of iron to prevent rust, etc.

In the case of the other natural resources, which are replaceable, the problem of conservation is that of renewal as they are used. Erosion of the soil should be prevented, and the elements taken from the soil by growing crops should be restored by means of fertilizers, by scientific rotation, or by other means. Similarly forests and fish may be utilized, but care should be taken to renew them. Fires must be stopped, the wastes of logging and milling reduced, reforestation undertaken on a scientific basis, and taxation so adjusted as not to compel the cutting of standing timber. Our lakes and



OLD COTTON FIELD BADLY ERODED

streams must be constantly restocked to maintain the supply of fish. So, too, in the case of water, the problem is that of complete utilization. Floods must be reduced, the water used for irrigation where necessary, waterways improved for navigation, and the power locked up in our streams fully utilized for industrial purposes.

There is no reason why all of these resources should not last indefinitely if they are wisely used and conserved. Perhaps the strongest economic force leading to their more scientific utilization is the rise of prices that has taken place in connection with every one of these resources. The increase in population and consequently in demand, together with a diminution in supply, relative or absolute, has forced prices of most raw materials up to a point where it is profitable to be careful. This is our strongest guarantee of conservation, but legislation is also needed. In many cases private profit and public policy are antagonistic, as in the use of forests, water, etc. In all such cases public policy must rule, and the government should be empowered to take over the control of our forests or water power or coal mines or any

resource to the extent necessary to prevent exhaustion or monopolization.

In the case of national vitality and human life dependence must be placed more largely upon education and legislation. Sickness and disease must be prevented ; that this can be done to an extent hitherto undreamed of is shown by the success that has attended the stamping out of yellow fever, bubonic plague, and similar epidemics, the cure of the hookworm disease, and the reduction in mortality from tuberculosis. Federal, state, and municipal governments must compel sanitary conditions of living and work in the home and industrial establishments ; water and milk supplies must be guarded, medical inspection introduced in our schools, and above all the individual man and woman must be trained in right habits of living. The new science of eugenics is also insisting upon more careful attention to the problem of rearing a strong and capable race ; sickness and disease will thus largely disappear and national efficiency be greatly increased.

SUGGESTIVE TOPICS AND QUESTIONS

1. Should the forests or the fisheries ever be exhausted if properly managed ? Is this true of mines ? Of soils ? [A. Marshall, *Principles of Economics* (4th ed.), 244-7.]

2. Is there any connection between the presence of forests and the amount of rainfall ?

3. "The world could dispense with the precious metals more easily than it could with coal and iron." Do you agree with this ?

4. Compare the known coal supply of the United States with that of other industrial nations ; what conclusions could be drawn with respect to the question of industrial supremacy ? [Encyclopedia.]

5. Why has the Cordilleran system been called "the curse of the continent" ? Is it ? [N. S. Shaler, in J. Winsor's *Narrative and Critical History of America*, IV, v.]

6. What effect did the change from water power to steam have upon the localization of industries ? [S. Trotter, *Geography of Commerce*, 127-130.]

7. Describe some of the improvements in the utilization of coal alluded to on page 363.

8. What were the new uses for copper which led to so great an increase in demand after 1880?

9. Describe placer mining of gold.

10. Name some of the uses to which aluminum was being put; lead; zinc; quicksilver.

11. Explain the shifting of the center of the lumber industry from the Lake region to the South.

12. Under the general property tax of most of the States, the standing timber is taxed each year according to its value. Do you think this had any effect upon the cutting of the timber?

13. Would it be economically wiser to encourage the importation of lumber from Canada and oil from Mexico, or by protection to encourage the use of our own supplies?

14. At the time of the Revolution the iron deposits in New Jersey were being mined; why are these no longer utilized?

15. If the Pacific coast were well provided with harbors and navigable rivers, is it likely that it would become commercially and industrially as important as the Atlantic seaboard?

16. As man progresses, does he become more or less dependent upon his physical environment?

17. Has the existence of rich natural resources made the United States a better place to live in?

18. What is conservation and why have we recently heard so much about it? [G. Pinchot, *Fight for Conservation*, 40-52; M. H. Gregory, *Checking the Waste*, 1-19; H. Plunkett, *Rural Life Problem*, 17-34.]

19. To what extent have the waste and exhaustion of our metal and fuel resources been carried? How may they be conserved? [Report National Conservation Commission, I, 95-114; III, 426-445, 483-520; Conference of Governors, 14-62; C. R. Van Hise, *Conservation of Natural Resources*, 16-45, 62-101; Gregory, *Checking the Waste*, 124-143, 164-180.]

20. Describe the wastes of lumbering and measures taken to conserve our forest resources. [Report National Conservation Commission, I, 51-74; II, 179-758; Proceedings First National Conservation Congress, 212-216.]

21. In what ways does a waste of human life occur? How may it be prevented? [Van Hise, 364-374; Gregory, 265-301; Pinchot, 101-108.]

22. Why should we practice conservation? Chemists are continually discovering new sources of raw materials, and physicists promise to release atomic energy. The past shows that substitutes have always been found, frequently better.

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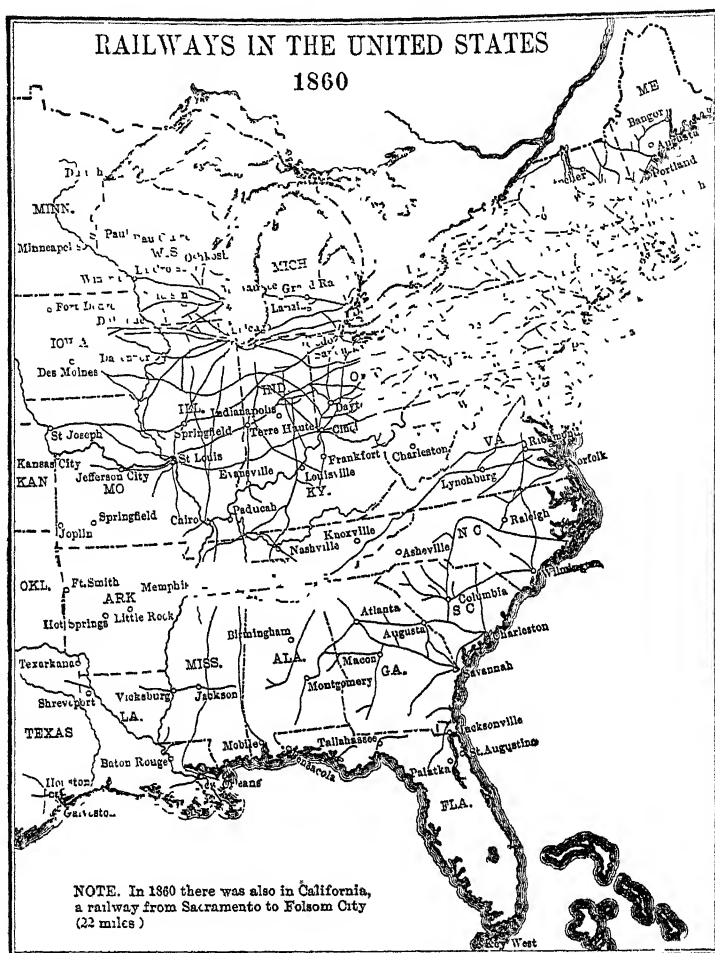
CHAPTER XXIII

TRANSPORTATION AND COMMERCE

The first problem laid upon the transportation system during this period was that of providing adequate facilities for carrying the rapidly increasing commerce of the country. In solving this mistakes were made along many lines and to the correction of these attention was increasingly given by the end of the period.

Growth of the railway system.— Hand in hand with the increase in the production of material wealth has proceeded the growth of the means of transportation and distribution. Cheap and rapid systems of transportation have been a necessity over the enormous distances of the American continent, and the railroad has therefore attained an importance greater here than in any other country in the world. In no country has the growth of the railway so directly affected the development of the staple industries. "For years the history of the railroads was the history of the country."

The means of transportation and communication were developed upon an unprecedented scale during the twenty years after the Civil War. Railroad building was checked during the war, but only temporarily, and the decade saw the number of miles almost doubled — from 30,635 in 1860 to 52,914 in 1870. The years 1868-72 in particular were years of extraordinarily rapid growth, especially for the upper Mississippi valley. Railroad extension was again interrupted by the crisis of 1873, which was largely caused by the too rapid railway construction and the intense speculation accompanying it, but by 1879 it began to revive, and the end of the decade saw the number of miles again almost doubled; by 1880 there were 93,296 miles of railroad in the United States. This increase of almost 75 per cent in ten



years far outran the growth in population, which was only 30 per cent in the same period. Most of the new construction took place in the Northwestern States and afforded an outlet for the grain supplies which these States were beginning to pour into the world's markets; considerable was built also in the South and the Southwest. The building of

the railways, too, both facilitated and was demanded by the enormous immigration which now began to fill up our Western territory. During this same decade the population in the Northwest increased 44 per cent and that of the Pacific States 114 per cent.

The decade 1880-1890 witnessed the greatest expansion of the railway net that had yet been seen : from 93,296 miles in 1880 the railway mileage grew to 163,597 in 1890, a practical doubling in ten years. The construction was carried on chiefly in the Central and Western States, where the agricultural and mining wealth was being developed, and where transportation facilities were most needed. The crisis of 1884 was brought about by the too rapid and speculative railroad building of the years immediately preceding. By 1890 the country seemed to be pretty well supplied with railway facilities, and after that time construction was less rapid. The crisis of 1893 and the resulting depression also retarded railway growth and forced the railways not merely to curtail new building, but to practice the most rigid economies. Nevertheless, by 1900 the railroad net contained 193,345 miles.

The period of rapid railroad construction came to an end with the nineteenth century ; since that time there has been a slower growth. Between 1900 and 1916 the railway net grew to 259,705 miles of line (the highest point in our history). The most important addition was the completion of the Chicago, Milwaukee & St. Paul from Chicago to Seattle in 1909. There were now within the United States seven distinct transcontinental railway systems.

Character of the American railroad.— The nature of the traffic carried by the American railroads was already impressing upon them certain characteristics which differentiated them greatly from European railroads. More than 60 per cent of the freight tonnage in 1880 consisted of heavy, bulky articles, such as coal, grain (these two alone making up 45 per cent of all freight), iron, lumber, stone, and petroleum. It is evident that heavier rails, bridges, and cars were needed

than where the traffic consists of light general merchandise. Even more necessary before such goods could be moved profitably was the establishment of low rates. Consequently, the history of American railway development since the Civil War has been in both these directions. Probably no other single influence has been so effective in reducing the cost of transportation and improving the general condition of the track as the substitution of steel for iron rails. A few imported steel rails had been laid as early as 1864, but their manufacture in the United States did not begin until 1867. Their use increased slowly, but by 1877 the annual production of steel rails had passed that of iron rails, and by 1880 was exactly double. At the same time there was a steady reduction in price, from \$166 (currency) per ton in 1867 to \$48.25 in 1879. The use of steel in the construction of locomotives and cars, as well as the enhanced strength of the rails, led to a great increase in their size, weight, and capacity, and at the same time the permanent way was improved by reduction of grades, better alignment of track, improved drainage and ballasting, and better bridges.

The public service of the railroads : freight traffic.—The freight service of the railroads, whether regarded from the standpoint of earnings or of public service, was much more important in the United States than the passenger service ; in 1910 the earnings from freight traffic were almost three times as much as from passengers, while there were forty times as many freight cars as passenger cars. The growth of the freight business, too, was more rapid than that of any other branch of service, having more than doubled in the twenty years ending in 1910. More than half of the tonnage consisted of products of the mines — coal, ore, stone, etc. — while about a quarter more was made up of lumber, grain, livestock, and other heavy articles shipped in large quantities. Railroads were a necessity for moving these goods from the points of production to the markets, and the chief object in railroad building was to afford these facilities as speedily and cheaply as possible.

As the country developed, the original, hastily constructed lines had to be replaced with better and more expensive ones. The roadbed and the track of the best lines were relaid, curves straightened, grades reduced, old wooden or iron bridges replaced by strong steel or stone ones, and heavier rails laid, millions of dollars having been spent by the railroads in these improvements. These changes were necessitated by the introduction of larger and heavier cars and locomotives, adapted to the heavy traffic characteristic of the United States. About 1870 the average freight box-car in the United States had a capacity ranging from 16,000 to 24,000 pounds; in 1881 the 40,000-pound car was introduced; by 1900 pressed steel cars with a capacity of 100,000 pounds were in common use. The typical American car was probably the 60,000-pound car. The locomotive showed the same evolution as regards both weight and strength: locomotives weighing more than 100 tons and capable of drawing train loads of 2000 to 2500 tons were found on the best equipped lines. As the capacity of the railroads to handle the increasing traffic grew, and also the size of the units handled, the terminal facilities for handling freight, especially coal, ore, and grain, were wonderfully developed. Electric cranes, elevators, and other labor-saving devices for handling these commodities in bulk were being introduced at terminal stations to an increasing extent, and corresponding economies in loading and unloading the cars were being effected.

The passenger service.—While the competition of rival railroads for freight traffic was resulting in the steady reduction of freight rates, in the passenger service competition led rather to improvements in accommodations, speed, and safety. By 1910 the passenger on an American railroad could probably travel more luxuriously than in any other country in the world. The use of vestibuled trains, better constructed cars, and improved methods of heating and lighting contributed greatly to the comfort of traveling. At the same time its safety was increased for the public by the introduction of

steel frame cars, of the block signal system, and of automatic train-brakes and couplers ; although these appliances dated only from the eighties, almost all passenger cars were equipped with them.

In spite of these precautions, however, the loss of life on American railroads was appalling : in 1914 there were 10,302 persons killed and 192,662 injured in railroad accidents. The loss of life and limb was greatest among the employees, especially the trainmen, among whom 1 in every 137 was killed and 1 in every 9 was injured. Chiefly responsible for these accidents were the lack of proper precautions in guarding the right of way and giving due notice of the approach of trains, the single tracks and grade crossings, the insufficient labor force and the long hours of work, together with a certain recklessness in the running of trains. This showing was unparalleled anywhere else in the world.

The transcontinental railroads.—The idea of a transcontinental railroad had been advocated as early as 1834, and the gold discoveries in California had revived the demand for it, but nothing tangible was done in this direction until 1862. Then the political and military necessity of uniting the Pacific States with the East, and of securing better means of communication with the Southwest, induced Congress to aid several companies to build lines across the Western plains. The Union Pacific railroad, which constructed its line from Omaha to Ogden, received 12,000,000 acres of the public lands, and the Central Pacific, which built eastward from Sacramento to connect with the Union Pacific received 8,000,000 acres. The Northern Pacific was granted more than 10,000,000 acres. Additional grants to the Kansas Pacific and other corporations brought up the total to 33,000,000 acres. In addition to these grants of land three of the companies mentioned received large loans of money from the Federal government.

During the twenty-one years between 1850 and 1871, at which time land-grants were discontinued, more than 159,000,000 acres were placed at the disposal of railroad corpora-



DRIVING THE LAST SPIKE

The Union Pacific and the Central Pacific railroads were joined at Promontory Point, near Ogden, Utah, on May 10, 1869. When the "last spike," made of California gold, was driven in, the news was telegraphed to every part of the country and was received with general rejoicing. The building of this first transcontinental railroad was a striking evidence of the irrepressible energy of the people of the United States. It was of incalculable value in developing the West and uniting it with the East.

tions by the Federal government and 55,000,000 acres by the State governments, to which the land was previously given for this purpose by the Federal government. Of course not all the land thus granted was actually obtained by the railroads, as they did not fulfill the conditions of the grants by actual construction, but by 1880 about 43,000,000 acres had been certified to the land-grant roads. In addition to the transcontinental lines, other roads were built running north and south, and the country was rapidly being united by great trunk lines and a network of shorter lines.

Construction and finance.—The paramount problem of this period was the rapid extension of railway facilities, and this was well met. But more important than the mere physical growth and improvement of the railroads were the vari-

ous problems to which they gave rise. Serious abuses developed in the construction and financing of the early roads. It was a pioneer stage of development, in which freedom of competition and absence of government regulation, together with a low business morality, permitted proceedings which today would be impossible. Some of the most serious abuses may be mentioned. In the building of the Union Pacific railroad a construction company was organized which took over the contracts to build the road at so much a mile. On the surface such a company was legitimate and useful, as it would distribute the risks in a rather hazardous venture according to the principle of limited liability. But in effect it opened the way to a scandal of national proportions. The stockholders of the Credit Mobilier, as the construction company was named, were also leading stockholders and directors in the Union Pacific, and in their latter capacity they voted themselves in their former capacity unduly profitable contracts, thus defrauding both the government and innocent investors in the railroad. The practice was by no means confined to this single road.

Irregular financial methods were also exemplified by the wrecking of the Erie railroad by Jay Gould and his associates, a particularly deplorable feature of which was the corruption of the state judiciary. The all but universal practice of granting discriminatory rates to favored shippers should also be mentioned. The Standard Oil Company was the chief beneficiary from this abuse, as it was the most unscrupulous in using the device to crush out its competitors. Another evil was over-capitalization; it was estimated in 1885 that one-third of the capitalization of the railroads in that year represented "water." It was an exceptional period in the history of transportation and was marked by great abuses as well as by great achievements. The public was as yet uninformed, public sentiment was not keenly alive to business delinquencies, and adequate methods of management and control of the growing railroad corporations had yet to be developed. Government agencies for regulating



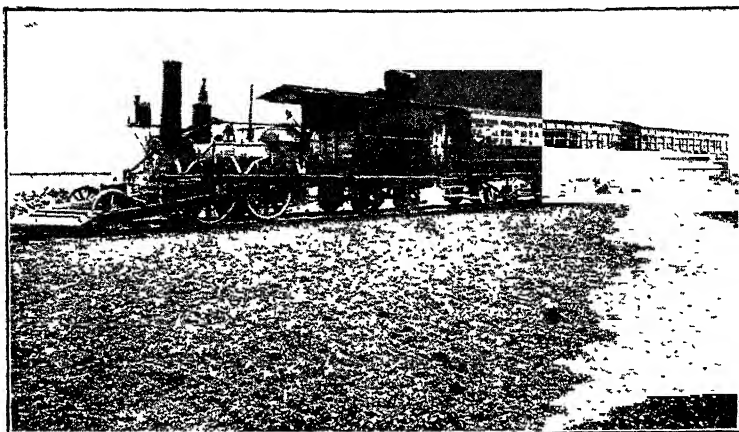
From *Leslie's Weekly*

A GROUP OF WORRIED SPECULATORS

These anxious speculators in Erie stock are shown looking at the tape in Delmonico's, Broad St., New York City.

and securing publicity were practically unknown, and among the railroads themselves there existed considerable and at times severe competition, which led to the use of questionable devices.

Railroad combination.— One method of escape from the evils of competition was that of combination, and the first phase of this to attract public attention was the consolidation of disconnected but continuous lines. As long as the traffic was local the lines remained short and unconnected ; not until after 1850 was a length of 500 miles attained by any one line. In the decade 1850-60 many consolidations of short links into one connected road took place, but the larger combinations of connecting roads into great trunk lines did not occur until after the war. Then the growth of the Western grain traffic and other long-distance business made

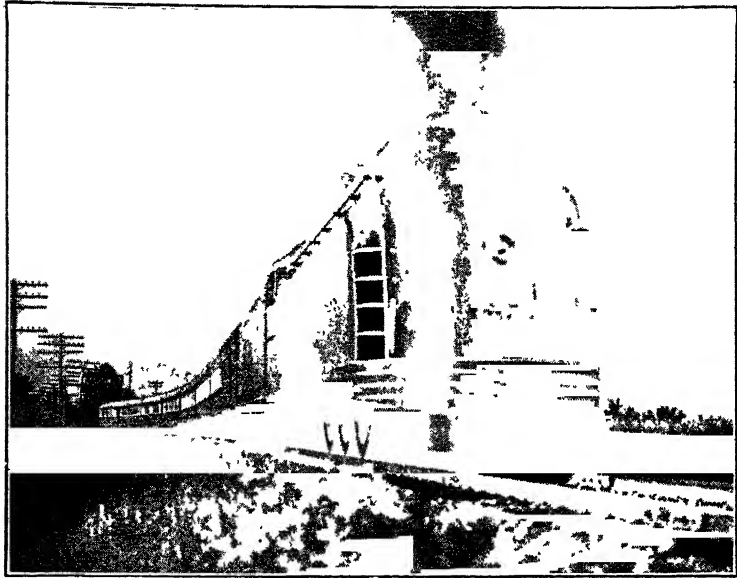


ENGINE AND TRAIN, 1831

The locomotive "John Bull" was built in England and put in service on the Pennsylvania Railroad in 1831. In 1893 it hauled the train, shown above, to Chicago. Contrast it with the high-speed passenger engine and coaches shown on the opposite page.

through shipments very desirable, and under the leadership of such skillful railroad managers as Thomas A. Scott and Cornelius Vanderbilt an era of consolidation took place. By 1880 the great trunk lines as they exist today had already been formed.

Railroad competition and pooling.—The formation of great trunk lines, while reducing the number of competitors, increased the intensity of competition, especially for the through traffic between the Central West and the Atlantic seaboard. The main lines that were bidding for Western business were the New York Central, Pennsylvania, Erie, and Baltimore and Ohio, but their rivalry did not become serious until after 1869, in which year the New York Central and the Pennsylvania secured through connections to Chicago. A few years later Chicago was reached by the Erie, Baltimore and Ohio, and the Grand Trunk, and a series of ruinous rate wars was initiated by the efforts of the competing roads to divert as much of their rivals' business



ENGINE AND TRAIN, 1938

The "Mercury," New York Central's new streamliner, has a speed of 93 miles an hour.

to themselves as possible. It was easier to steal existing business from a competitor than to develop new traffic. As combination was out of the question, agreements were made which usually took the form of pools, according to which the whole traffic or earnings were divided among the erstwhile competitors on some prearranged basis. Pooling, which began in 1870, was the leading characteristic of railroad development during the decade following.

The Interstate Commerce Law of 1887 forbade "any contract, agreement, or combination . . . for the pooling of freights of different competing railroads," and thereby made illegal all the existing pools between the railroads. To obtain co-operation, the various traffic associations simply reorganized, without the pooling clause, "for the purpose of facilitating the transaction and exchange of business with each

other." These associations, while technically avoiding pooling, regulated rates and punished offending members. In 1897 and 1898 the Supreme Court decided in two important cases — those against the Trans-Missouri Freight Association and the Joint Traffic Association — that rate agreements violated the anti-trust law of 1890, which prohibited "every contract, combination in the form of a trust or otherwise, or conspiracy, in restraint of trade or commerce," and that they were therefore illegal. As pools and rate agreements were now both forbidden, the railways were compelled to devise a new method of regulating their relations or return to unrestricted competition. The first and most noticeable result was an additional impetus to a process already in operation, namely the consolidation of hitherto independent and competing lines and the absorption of the smaller roads by the large systems. During the eighties, and to a still greater extent during the nineties, there occurred the combination of hitherto independent lines into vast systems containing thousands of miles of line. Railroad systems with more than 1000 miles each now came to constitute over half of the total railroad mileage of the country.

Consolidation.—Beginning with 1898 the consolidation of railroads proceeded very rapidly, until it was finally checked by the decision in the Northern Securities case (1904) which declared the combination of parallel roads to be illegal. These consolidations had been brought about by purchase in some cases, by lease or by means of stock-holdings in others.

Most of the connecting lines were consolidated into a few great systems which were controlled by groups of capitalists. The following were the most important "groups," with the approximate mileage for 1906, although these figures varied from year to year: Vanderbilt (21,353), Pennsylvania (16,836), Harriman (14,725), Hill (20,242), Morgan (18,879), Gould (16,520), Moore (13,028), Rockefeller (10,293). These great consolidations have followed in the main the territorial groupings of railways; each system

served for the most part a particular district and in some cases developed special kinds of traffic.

Opposition to railroad combination first found expression in court decisions. In 1904 the Supreme Court in the Northern Securities case declared the combination of the Harriman and Hill interests illegal ; in 1912 it ordered the Union Pacific to dispose of its Southern Pacific stock ; and in 1914 the New Haven combination was also broken up. Congress next enacted legislation against combinations for the purpose of restoring competition. The Panama Canal Act of 1912 provided that after 1914 railroads should not control water transportation lines operating through the Canal nor in other cases where competition might exist. And in 1914 the Clayton Anti-trust Act forbade one carrier to own stock in another when the effect would be to lessen competition between them. It was evidently the purpose of these laws to enforce competition by legislative edict.

Rates.—The four decades after the Civil War saw a progressive reduction in the charges for transportation services. Passenger fares were reduced less rapidly than freight rates, but competition took the form rather of improving the service. The causal connection between railroad rates and traffic is one of interaction. As the business grew it became possible for the railroads to reduce rates, and the lower charges in turn stimulated new traffic. Transportation is a business which yields "increasing returns" : after the road is built and equipped, its expenses do not grow proportionately with an increase in traffic ; as the business develops, it is possible at the same rates to obtain increasing returns in profits, or the dividends may remain at the same level and charges be reduced. As a matter of fact, both results have been achieved in the United States, although the increasing rate of profits has been largely concealed by the universal practice of watering the stock. The decline in rates is more obvious and striking. This has been brought about by competition among railways themselves, by the competition of the railways with water routes, and finally

by the competition among various productive centers in different parts of the country.

In 1871 the average fare per passenger mile was 2.632 cents (gold), and in 1881 it was 2.446 cents. Freight rates declined more rapidly, especially for the through traffic ; this was brought about largely by the various improvements in the equipment and management of railroads which have been described. The average rate per ton mile was 1.927 cents (gold) in 1867 ; ten years later it was 1.286 cents, a reduction of more than one-third. The effect of these low rates was soon seen in the development of the West, the shifting of cereal production entirely from New England and largely from the North Atlantic States to the Central and Northwestern States, and the diversion of traffic from the lake and canal routes to the railroads. As the railroads began to carry more of the traffic, the cities of Boston, Philadelphia, and Baltimore began to clamor for a larger share than they had been able to secure while the Erie Canal and the Hudson River were the chief highways of commerce. Accordingly, a system of "differential" rates was established, which made the charges to those cities somewhat less than that of New York, and placed them on an equality in bidding for the export trade.

The average revenue per ton per mile received by the railroads in the United States for freight decreased from 1.24 cents in 1882 to .74 in 1914. Passenger fares were not reduced to the same extent, as lower fares do not stimulate travel in the same degree that lower freight rates stimulate freight traffic ; the average revenue per passenger mile was 2 cents in 1914, as against 2.42 cents in 1883. Freight rates on the average were considerably lower and passenger fares somewhat higher than those in European countries. The reduction in freight rates is best brought out by comparing the average annual rates on wheat by lake, canal, and rail from Chicago to New York, which are briefly shown in the following table :

AVERAGE ANNUAL RATES ON WHEAT FROM CHICAGO TO NEW YORK			
YEAR	WHEAT (average rates per bushel)		
	By Lake and Canal	By Lake and Rail	By All Rail
	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
1868	22 8	29 0	42 6
1880	12 3	15 7	19.9
1890	5.8	8 5	14.3
1900	4 4	5 1	9 9
1910	5 1	6 5	9 6

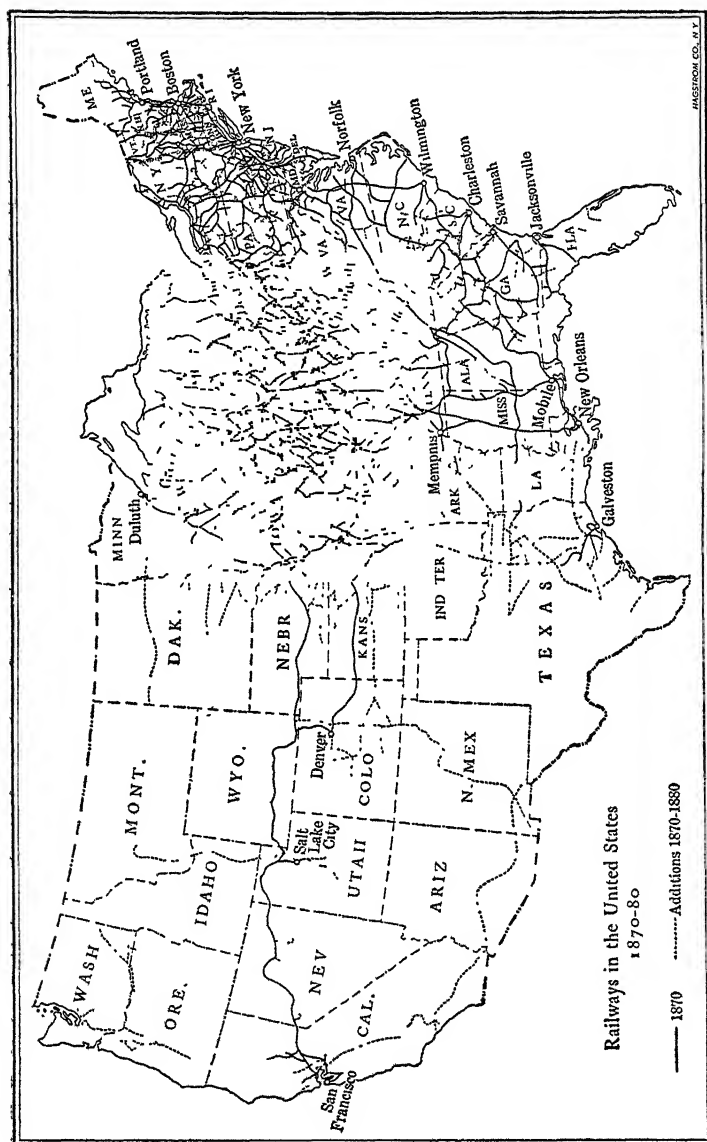
Discriminations.— Few complaints were made by shippers on the ground that rates were absolutely high in themselves. On the other hand, no charge against the railroads was so constantly reiterated as the practice of granting discriminating rates — discriminations between persons, between localities, and between different classes of goods. Of these the least defensible were personal discriminations. While lower rates to large shippers for car-load lots were not in themselves objectionable, special favors were often granted to individuals or corporations in order to obtain their business by diverting it from rival roads. The Standard Oil Company and other trusts owed their success in large measure to their ability to obtain such concessions. Discriminations were granted by means of secret rates and rebates ; by paying rentals for private cars ; by commissions for obtaining freight ; by under-billing and under-classification ; by excessive allowances for the use of terminals owned by shippers, etc. Although these were forbidden by the Interstate Commerce Act of 1887, the receivers of the Baltimore and Ohio Railroad testified before the Industrial Commission in 1898 that more than 50 per cent of the traffic, at least on certain lines, was carried at discriminatory rates.

Discriminations between places, while objectionable, are not secret and therefore less reprehensible than personal discriminations. A conspicuous class of these was forbidden in

1887 under the "long and short haul" clause of the Interstate Commerce Act, which prohibited a greater charge for a short than for a long haul over the same line and in the same direction under substantially similar conditions. The question of discrimination between different classes of goods involves the whole problem of freight classification, and must be passed over here with a simple reference.

State regulation and control.—In the United States the States have the right to control commerce carried on within their boundaries, while the power to regulate interstate commerce is vested in Congress. Until 1870 little use was made by the State governments of this power; the chief aim of the Western States was to obtain railroad facilities and there was no disposition to impose restrictions on new roads. Competition was relied upon to protect the public from abuses. In the early seventies, however, partly as a result of high rates and gross discrimination on the part of the railways, and partly as a result of the lower prices resulting from overproduction and currency contraction and the crisis of 1873, the farmers of the Western States demanded the regulation of railway rates. Illinois began the movement in 1870 by the establishment of a State commission with powers to prescribe maximum rates, to prohibit discrimination, and to regulate the railroads. This example was followed by other States in the West and the South—Iowa, Wisconsin, Minnesota, Georgia, California, etc. The so-called "granger" legislation of this period was extreme and was either repealed or modified in a few years, but it was notable as the first effective demand of the shippers that the railroads should be treated as public service corporations, and not as mere private enterprises for the enriching of their promoters or owners. To the farmers of the West adequate transportation facilities and fair rates were an essential condition of prosperity, and these they endeavored to obtain by the means under their control.

Federal regulation of rates.—Federal legislation on the subject of railroads dates back to 1866, but no serious at-



tempt at regulation was made until the passage of the Interstate Commerce Act of 1887. This provided that charges be just and reasonable ; prohibited discrimination, pooling, a greater charge for a short than for a long haul ; required publicity of rates ; and provided for a commission of five persons, to whom should be entrusted the investigation of alleged violations of the act. The Interstate Commerce Commission sat as a tribunal to hear complaints and render decisions upon cases brought before it ; the enforcement of its decisions was obtained through the courts, to which the railroads could appeal from the commission. According to the original act the findings of the commission were to be final as regards matters of fact, but in 1889 the Supreme Court decided that new evidence could be introduced on appeal, and thereby, by taking up cases *de novo*, greatly lessened the authority of the commission. It likewise modified the interpretation of other sections of the act, so as to deprive the commission of much of its original power.

Federal regulation.—Some of the difficulties in the Federal regulation of interstate commerce were removed by the Elkins Act in 1903, which defined more clearly unfair discrimination and rebating, and expedited the trial of roads against which charges were brought. It failed, however, to provide any machinery for compelling railroads to reduce unreasonably high rates, and applied only to personal discriminations. The Hepburn Act of 1906 went farther than any previous legislation in enlarging the powers of the Interstate Commerce Commission, and definitely extended the principle of detailed governmental supervision, which had been previously exercised only in the case of the national banks, over the common carriers of the country — express, sleeping car, and pipe line companies, switching and terminal facilities, as well as the railroad themselves. It forbade the granting of free passes, prohibited railroads from carrying their own products to market, strengthened the law against rebates, placed private car lines, etc., under the control of the commission, and provided that it should “determine and

prescribe what will be the just and reasonable rate"; the final control over rates was, however, left with the courts.

In 1910 the Mann-Elkins Act carried government control another step forward. Express, telegraph, telephone, and cable companies were now brought under the control of the Interstate Commerce Commission, and a Commerce Court was established to hear all appeals from the decisions of the commission, thus relieving the circuit court of these cases and providing for an expert tribunal. Two years later Congress proceeded to abolish the commerce court as a result of dissatisfaction with the character of its decisions. The most important change in the power of the Interstate Commerce Commission was in reference to the long and short haul. The original act of 1887 had provided that a greater charge could not be made for a shorter than for a longer haul over the same line and in the same direction, under substantially similar conditions. In 1897 the Supreme Court had greatly modified the effectiveness of this provision by ruling that competition constituted dissimilar conditions, and thus justified larger charges for the short haul at competitive points. The old phrase, "under substantially similar circumstances and conditions," was eliminated in 1910, and such larger charges for the short haul thereby made illegal. Another important provision of the new act was that which gave to the commission the power to suspend all proposed increases in rates until it could hold hearings and determine their reasonableness.

In spite of the early limitations and the recent extension in the scope of its powers the Interstate Commerce Commission resulted in much good; by its numerous decisions it developed a body of more or less authoritative rules for the regulation of railways; the right of the Federal government to control them, at first disputed, was thoroughly established; and finally there was created a system of machinery for dealing with them which could easily be enlarged or entrusted with greater powers if that seems desirable. The principle

and the character of governmental regulation of railways in the United States have been determined, and the problem of the future is simply how far that control shall go.

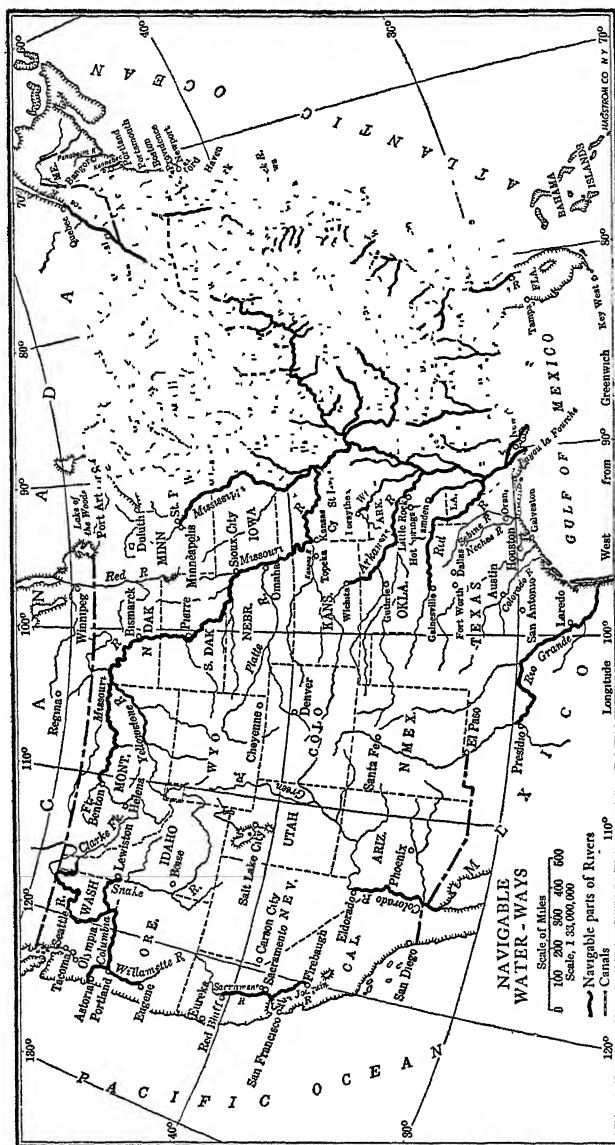
Development of electric railways.— The growth of electric railways outside of cities belongs almost entirely to the period since 1895, and reached its highest development in the Central States of Ohio, Michigan, and Indiana. Almost 17,000 miles of interurban lines existed in 1902, and by 1912 the mileage had grown rapidly to more than 41,000. The roads possessed certain advantages over steam roads which made them very popular : since no locomotives are necessary, the cars can be sent off single and hence frequent service is possible ; frequent stops, with comparatively high speed, are also made possible by this same cause ; fares are much lower because of the greater economy of construction and operation. The convenience of the trolley greatly increased the amount of travel in the districts through which they were built, and contributed largely to the interchange of business between the cities and the small towns and farms. The interurban electric lines had a distinct socializing effect upon farm life, breaking down its isolation, introducing higher standards, and broadening the horizon of the country dwellers. They afforded a profitable outlet, by means of the express and freight trolley, for the produce of the farm, brought the superior school facilities of the town within reach of the country home, and rendered the markets and shops easily accessible.

The superiority of electricity to steam as a motive power for railroad transportation led also to the electrification of steam railroads. The opening years of the twentieth century saw a considerable application of electric traction to suburban service and to city terminals where frequent stops and cleanliness are important considerations ; the latter factor led to its use in long tunnels and subways, as on the roads leading into New York City. It has been found especially valuable on heavy mountain grades, where steam pressure inevitably decreases but where the tractive power of an elec-

tric engine can be maintained steadily at its maximum ; in those sections where coal is scarce and hydro-electric power available the advantage is still greater.

Inland waterways.—The United States is wonderfully provided by nature with a system of long and navigable rivers. The Mississippi River with its tributaries drains more than 1,000,000 square miles of territory in the very heart of the most fertile region of the country, and cities more than 1000 miles inland have direct water communication with the seaboard. Altogether it is estimated that there are 18,000 miles of navigable rivers in the United States, while the shore line of the Great Lakes extends for at least 1500 miles more. In spite of this wonderful natural system of internal waterways, there was a steady diversion of traffic from them to the railroads. After the Civil War it was found that the traffic which had previously gone down the Mississippi River sought a quicker and less circuitous route to market over the railroads or by the lake route. As railroads were extended to river points, they gradually encroached upon the steamboat traffic of the Mississippi, which reached high-water mark in 1879 when the jetties were opened to commerce. After that date it steadily declined. The receipts by water at New Orleans of Western produce — flour, pork, and lard — were only just sufficient for domestic consumption, while no wheat at all was received. Cotton formed the staple of the Mississippi River traffic, and even this fell off as the years went by. The packet business, once of great importance on the Mississippi, the Ohio, the Tennessee, and other rivers, declined to small proportions, and by the end of the century, instead of general merchandise, the principal commodities transported were coal, sand, stone, lumber, and wood.

The decline in the amount of traffic carried on our rivers, which began in the sixties, continued without intermission. There was a steady diversion of traffic to the railroads, and in 1914 it was estimated that the rivers carried less than four per cent as much as that transported by rail. Almost the

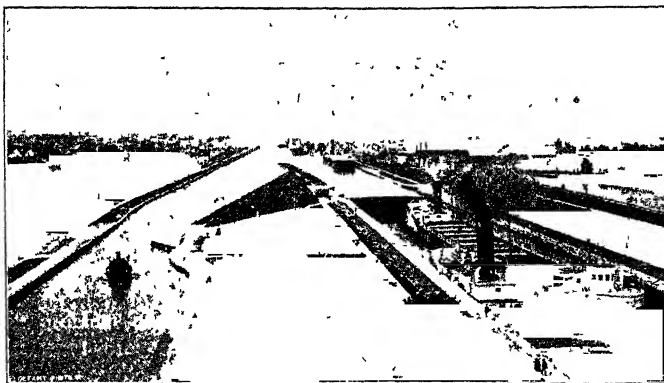


The heavy lines show the navigable water-ways of the United States, in which the water is three feet deep or over. The length of these is some 26,000 miles.

only traffic still remaining on the rivers was that of cheap, bulky commodities.

Canals.— The canals suffered even more than the rivers from the competition of the railroads. Although by 1880, according to the census report of that year, more than 4460 miles of canals had been built in the United States at a cost of \$214,000,000, about 2000 miles had been abandoned and the traffic over the remainder was declining. The Erie Canal was the only artificial waterway which, after the Civil War, still carried any considerable amount of traffic ; as late as 1868 practically all of the grain arriving at New York City came by way of the canal. After 1873, however, the canal traffic began to decline rapidly. In 1876 the New York railroads carried more than three times as much tonnage as the canals and more than half of all the grain received at New York City. The diversion of traffic to the railroads became so great that in 1882 the canal tolls were abolished, but this was not sufficient to check the decline in the canal traffic, which fell to 12 per cent of the entire freight movement across New York State in 1890 and to 5 per cent in 1900. Partly responsible for this decline was the absolute decrease in the amount of lumber and forest products carried across the State, which had generally gone by the slower route ; but more important was the lack of improvements in equipment and facilities. The growing trade in grain and iron was diverted almost completely to the railroads, which meanwhile had made extensive improvements.

Canal traffic has followed much the same course as the river trade ; there has been a continuous falling off. The older canals, which have not been improved or deepened, have become utterly valueless except for occasional pleasure boats. Even the Erie Canal, on the widening and deepening of which more than \$165,000,000 has been spent since 1903, has not as yet shown an increase in traffic to justify this outlay. On the other hand, a few artificial ship channels, which are connecting links between important bodies of navigable water, have shown a notable development. Thus



THE LOCKS AT SAULT STE. MARIE, MICH.

On the right is the Poe lock, the largest in the world when built, 800 feet in length, 100 feet wide, and admitting vessels drawing 20 feet of water. Vessels with a tonnage of more than 92,000,000 passed through this canal in 1929 (maximum), or about three times the tonnage passing through the Suez Canal. This is the best single index of the traffic on the Great Lakes, as the canal is an indispensable link in this chain of natural waterways, and therefore of great economic value.

the Sault Ste. Marie Canal between Lake Superior and the lower lakes, an indispensable link in the Great Lakes system, has carried a constantly growing traffic. In 1900 it had become the greatest internal waterway in the world, with five times as many ships as passed through the Suez Canal and a traffic tonnage equal to nearly 40 per cent of the entire railroad system of the United States. Twenty years later more than 68,000,000 freight tons passed through it annually. New canals have also been built: the Cape Cod Canal, connecting Buzzard's Bay and Barnstable Bay and shortening and making safer the water route between New York City and Boston, was completed in 1914; in the same year there was opened the Houston Ship Canal, designed to provide Houston, Texas, with direct ocean communication.

Lake transportation.—While the river and canal traffic was falling off, that of the Great Lakes was increasing. The growth of commerce can best be measured by noting the amount of freight passing through the Sault Ste. Marie

Canal,¹ which may properly be considered as a link in this chain of lakes ; this increased from 403,657 tons in 1860 to 1,734,490 in 1880 and to 62,363,000 in 1910. Most of the traffic on the Great Lakes consisted of coal, iron ore, or lumber — all of which were being rapidly exploited — and was carried generally as through freight from one end of the system to the other. Accompanying the growth in traffic there went on an increase in the size of the vessels and a steady substitution of steam for sails as a motive power. In 1862 the sailing tonnage was more than double the steam tonnage, but by 1882 the two were equal ; in 1886 there were only 6 steel vessels on the Great Lakes, but by 1899 there were 296. Almost half of the entire tonnage of the country, exclusive of the fisheries, was on the lakes.

Several causes contributed to the very great increase in the shipping of the Great Lakes. The proximity of the lake ports to important areas of production, as of grain, iron, copper, lumber, coal, and similar products, made them the natural highway of commerce for the Northwest. "Several factors distinguish the commerce of the Great Lakes from all other water-borne traffic in which American vessels are engaged. . . In the first place, the carrying trade of the Great Lakes not only embraces, almost exclusively, raw material, but is made up principally of a limited number of commodities. Secondly, it is to a great extent a through traffic — the number and volume of cargoes transported from a lower to an upper Lake port, so called, or *vice versa*, greatly exceed the short coastwise hauls. Coal, both anthracite and bituminous, is shipped from the various ports on the south shore of Lake Erie to ports on Lakes Superior and Michigan, while flour and grain, iron ore, copper, and lumber make the trip from Lake Superior and Lake Michigan ports to unloading docks on Lake Erie."

These "unsalted seas" afford a deep and practically unbroken channel of trade for 1000 miles, providing cheap

¹ Statistics covering the movement of freight upon the whole lake system were not collected until 1889.

transportation for the heavy and bulky commodities produced in the area which they serve. This branch of water transportation alone has maintained itself against railroad competition, since it offers lower rates. The freight rate on wheat from Chicago to New York City in 1900 was 4.42 cents per bushel by lake and canal as against 9.98 cents by rail ; in 1916 the two rates were 7.95 and 10.08 respectively.

Roads.— The building of roads in the United States was halted by construction of canals and of railroads. Over the wide areas of this country the quicker routes were preferred, and labor and capital was devoted to the construction of these rather than to road-building. For three-quarters of a century road work lagged behind other lines of development. In 1890, however, there was launched at Chicago a "good roads" movement, which initiated a new phase of activity. For some years the movement was educational in its nature, but with the coming of the automobile increasing attention began to be paid to this problem. After 1900 great progress was made in the building of improved hard roads. According to the Census Bureau the direct expenditures of state governments for highway construction and maintenance in 1913 amounted to \$37,000,000, and that of the county and township governments to \$137,000,000.

Internal trade.— It is evident, from the great growth of the means of transportation, that a vast internal commerce was developing in the United States. Although the volume of this trade has never been accurately measured, as is done in the case of the value of the imports which enter our harbors, it has been estimated that the value of our internal commerce grew from about \$3,500,000,000 in 1860 to about \$20,000,000,000 in 1900, or seven to nine times as much as the total foreign trade of the United States at these respective dates. At the latter date our internal commerce equaled in value the total foreign trade of all nations of the world. The increase in the internal trade of the country was occasioned by the growth in specialization which was taking place in the nation's industries, and was facilitated by improve-

ments in transportation and the mechanism of exchange. In a community where each family produced its own food and other necessities, few exchanges were made, but as each individual and locality began to specialize in a single line of production, the business of effecting exchanges became increasingly important.

At the time of the Civil War most classes of manufactured goods passed from the manufacturers to the jobbers or the commission men and were by them distributed to the retailers and next passed on to the consumer. Manufacturing establishments were small and widely scattered, as were also retail establishments, and it was impossible for them to deal directly with one another. In the circumstances the middleman performed a useful and necessary service. As the business units grew larger, however, changes in business methods were introduced, all looking to the elimination of the middleman. Large companies, like the Standard Oil and the Pittsburgh Plate Glass Company, adopted the practice of making direct sales to retailers or consumers. The growth of large retail establishments, such as department stores with special buyers of their own, tended also in the same direction. These changes on the whole reduced the costs of doing business and resulted in lower prices to consumers.

The merchant marine.—In the ownership of merchant shipping engaged in foreign trade there was a steady decline during this period. The earlier development had brought the tonnage of our foreign merchant marine up to 2,496,894 in 1861, the highest point ever reached, but by 1880 it was down to 1,352,810, and by 1898 it had sunk to 726,213,² the lowest figure since 1840.

During the Civil War almost a third of our vessels were sold to foreigners, others were destroyed by Confederate cruisers or sold to the government for conversion into transports and cruisers. Congress refused to admit vessels sold

² Even this small amount was said to exaggerate our strength. Mr. Neall, a shipping merchant of Philadelphia, stated before the Industrial Commission in 1900, that less than 300,000 tons were suitable for transoceanic traffic.

abroad to American registry again, and our shipbuilders were unable to make up the deficiency. The heavy war taxes which had been imposed upon hulls of vessels and marine engines were repealed in 1868, but the duties on cordage, copper, and iron still remained, although a few shipbuilding materials were admitted free of duty between 1872 and 1875. These disadvantages made it impossible to compete with British and foreign shipbuilders in the construction of iron steamships, and with the passing of the wooden sailing vessel the carrying-trade passed almost entirely into foreign hands. Between 1865 and 1870 we had made a slight gain in the carrying-trade, even with our wooden sailing vessels, which did not have to give up valuable cargo space to coal, as did steamers on long voyages; but in the latter year the opening of the Suez Canal gave the advantage to the steamer in the China trade by permitting it to recoil *en route*, and inflicted the last blow on our struggling merchant marine.

This decline in the merchant marine had not been felt as a serious handicap so long as our energies and capital were devoted to the internal development of the country, but when, after 1898, our export trade began to take on larger dimensions, certain disadvantages showed themselves. In many cases direct service between American ports and foreign markets, especially in South America and the Far East, did not exist, and it was necessary to ship goods via German or British ports. American exporters were thus placed at a disadvantage in their competition with exporters of those nations upon whose ships we depended.

In the period between 1900 and 1914 a slight gain was made, and in the latter year the tonnage of ships under American registry engaged in the foreign trade was 1,076,152. Some efforts had been made in Congress to encourage shipping, such as the proposals to pass subsidy laws and the granting in the tariff law of 1913 of a discount of 5 per cent of duties on goods imported in American vessels. The subsidy bills were not passed, however, and the 5 per

cent discrimination was disallowed by the Supreme Court. In 1912 foreign-built vessels under five years of age were admitted to American registry and permitted to sail under the American flag; at the same time materials used in the construction and equipment of ships were admitted free of duty. In spite of this permission few foreign-built ships sought American registry during the next two years.

The real explanation of this steady decline is to be found in the larger profits to be obtained from other branches of industry. This was a period of rapid railroad building, of the exploitation of our mineral and forest resources, and of the development of large-scale manufactures. The largest returns were to be had by the investment of American capital in these lines, and the handing over of the carrying-trade to other nations which lacked similar opportunities for internal development. There was a great expansion of our foreign trade, but the proportion carried in American vessels fell from 66.5 per cent in 1860 to 9.3 per cent in 1900.

Growth of the foreign trade.—The advance of this country as an exporting nation from fourth place in 1860 to second rank in all the world in 1900 called attention to the advance which was taking place in our productive power and suggested the possibility of further changes in the movement of the world's trade. Until recently the people of the United States were occupied primarily with the task of appropriating and developing the resources of the country, and, like most new countries purchased more than they sold, running heavily into debt for supplies of capital and manufactured goods. This period may be said to have ended in 1876; up to that time in only comparatively few years had the exports exceeded the imports, while after that date they fell behind in only four years, namely, 1888, 1889, 1893, and 1895.

The following table shows the growth of the foreign trade of the United States, and the more important changes which were taking place during the nineteenth century :

FOREIGN TRADE OF THE UNITED STATES (IN MILLIONS OF DOLLARS)					
YEAR	Exports of Domestic Merchandise	Imports of Merchandise	Excess of Exports over Imports	Percentage which Agricultural Products formed of Exports	Percentage which Manufactures formed of Exports
1790	20.2	...	...	...	6
1800	31 8	91 2	59 4*	80	8
1810	42 3	85 4	43 1*	78	9
1820	51 6	74 4	22.8*	80	8
1830	58 5	62 7	4.2*	80	11
1840	111 6	98 2	13 4	82	10
1850	134.9	173 5	38 6*	80	13
1860	333 5	353 6	20 1*	81	11
1870	392 7	435 9	43 2*	79	15
1880	835 6	667 9	177 7	83	11
1890	857 8	789.3	68 5	75	16
1900	1394 4	849 9	544 6	61	24
1910	1744 9	1556 9	188 0	52	29
1914	2364 5	1893 9	470 6	48	46

* Excess of imports over exports.

Growth of foreign trade.—With the opening of the twentieth century the foreign trade of the United States experienced a great expansion. The causes of this were varied. The Spanish War in 1898 stirred the pride and the imagination of the American people and broke down provincial barriers. The great development of our internal resources and of our manufacturing industries was furnishing a surplus of products for export; and the large combinations of capital were seeking an outlet for this surplus in foreign markets. In 1900 and 1901 a veritable panic was occasioned among European manufacturers by the so-called "American invasion" of those years. The greatest growth occurred in our exports of domestic merchandise. But the growth of population and of wealth caused also an increase in imports, although this was much smaller.

Principles of international trade.—All trade, whether foreign or domestic, is based upon the same principle, that of a territorial division of labor, whereby each section endeavors to produce those things for which it is best fitted. Thus California raises fruits and exchanges them for shoes

and cotton cloth from Massachusetts. Similarly in foreign trade each country produces for export those things which it can produce most cheaply, and imports in exchange other articles which are produced more cheaply by other countries. Thus the United States exports raw cotton and petroleum in exchange for tropical spices or fine manufactured goods which are not so easily produced here as in other places. Since the world is divided among different nations, with varying languages and customs, and in different stages of economic development, and since, further, foreign trade is often regulated by tariff legislation, this branch of commerce is often treated as though it were different in principle from domestic trade. The distinction is rather one of degree. In each case exchange is attended by mutual benefits to both parties.

As long as differences in climate, resources, and ability exist in different sections of the earth's surface, international trade will persist. With every improvement in transportation and removal of barriers to freedom of exchange it will increase. Every movement towards the localization of an industry necessitates a development of exchange with other industries. Today international competition has taken an economic instead of a military form, and commercial supremacy means the conquest of foreign markets. A striking commercial phenomenon of the nineteenth century was the immense growth in the foreign trade of the world. In 1800 the world's trade was less than half as much as the foreign trade of the United States alone in 1900.

Special factors in the United States.—There were several special reasons for the rapid growth of the foreign trade of the United States, particularly during the last quarter of the nineteenth century. Our relations were becoming closer with tropical and sub-tropical countries, as Central and South America, the Orient, and our own foreign possessions. We were buying more largely of their peculiar products, which could not be so cheaply produced within our own limits, and on the other hand found them increasingly good

customers for our growing manufactures or for cruder products such as petroleum. The development of a higher standard of living among our own people increased consumption of such semi-luxuries as coffee, tea, sugar, etc. The growth of our foreign-born population through immigration also had the effect of increasing the demand for articles produced in the countries of their birth, sometimes by artisans accustomed to work with particular commodities, more often for articles of popular consumption. The demands of our manufacturers for raw or partly-finished materials for their industries also increased our imports, especially of such articles as rubber, raw silk, hides and skins, tin, vegetable fibres, raw wool, chemicals, etc. Our expanding manufactures now needed new markets for their surplus output and were reaching out after their share of the world's trade. They began to invade the markets of Europe as well as those of the industrially less developed nations.

Exports and imports.—The United States in 1860 was still thinly settled, and one-half of the population was engaged in agriculture, mining, lumbering, cattle-raising, and other extractive industries. Compared with Europe, which is nearly equal in area, this country was in the extractive stage of industry. During the first century of our national existence, accordingly, our exports were chiefly of agricultural products, to which mineral products were added in the last third of the period. The six most important exports, in the order of their importance in 1910, were raw cotton, machinery, petroleum, wheat, copper and its manufactures, and animal fats and oils. It will be seen that most of these were derived from the fields and mines rather than from the factories. Together they made up almost two-thirds of all exports, cotton alone furnishing 17 per cent.

The growth of exports of manufactured articles began to be increasingly important in the last decade of this period. In 1860 this group, including both manufactures ready for consumption and manufactures for further use in manufacturing, made up 12 per cent of our exports. But in 1910

it was 45 per cent, amounting to \$767,000,000. As machine builders we were winning especial recognition. Our pre-eminence in this field was due to a variety of causes, among which may be mentioned the cheapness of raw materials, a liberal patent system, the genius of men like Westinghouse and Edison, and a native skill in the use of machinery. The relative decline in agricultural exports was caused by the enormous increase in the population, coupled with the operation of the law of diminishing returns in agriculture, which resulted in the home consumption of an increasing share of our food supply. There was also a decline after 1860 in the relative importance of Southern products, cotton and tobacco, as a result of the rise of other products in other parts of the country.

The growth in our foreign trade was not confined entirely to the increase in export trade. As the people of the United States produced more and grew richer, they became at the same time better customers of other countries, and imported more freely. From \$316,000,000 in 1860 our imports grew to \$1,557,000,000 in 1910. Most of this increase consisted of luxuries or of manufacturers' materials, the latter group making up 43 per cent of the total.

Balance of trade.—An excess of exports over imports is usually called a "favorable" balance of trade. Such a situation may indicate that a country is putting other countries into its debt by selling them more than it buys, or it may be an index of the fact that the country is itself in debt and is paying tribute for capital loaned or services rendered. The latter seems to have been the case in the United States.

After deducting the imports from the exports there remained a "favorable trade balance" to our credit of \$396,000,000 a year on the average for the last five years of this period; this large excess of exports had been characteristic of our foreign trade since 1876, and was usually regarded as an indication of national prosperity. But it must be remembered that there were several important items which did not appear on the merchandise balance sheet, but

which materially offset this excess. The domestic cost of the imports was much greater than it appeared to be, for no allowance was made in these statistics for undervaluation, tariff duties, commissions, profits of importers, etc. In the second place, a large amount of our merchandise exports went to pay for expenditures of American travelers abroad, the interest on foreign capital invested in this country, payments to foreign shipowners for carrying our freights, insurance, and other similar expenses. And, finally, these statistics did not include the shipments of gold and silver from one country to the other. As we are a gold and silver producing nation we might be expected normally to export more specie than we import, but in three out of ten years 1900-10 there was an excess of specie imports over exports. But even after these deductions were made there probably remained a small annual balance in our favor, which was steadily being applied to the reduction of our foreign indebtedness, or investment abroad.

Means of communication.—The development and improvement of the means of communication kept pace with the industrial and commercial growth in other directions. Almost as necessary as an adequate system of transportation for carrying on the enormous domestic and foreign trade were the means of communication by which business men could inform themselves of industrial conditions and direct distant enterprises. Indeed, without the telegraph and the telephone the great manufacturing enterprises and railroads could not have been brought together in unified concerns. Improved means of transportation, communication, and credit combined to make possible the development of nineteenth century industry.

The use of the telegraph received a tremendous impetus by the invention in 1872 of duplex telegraphy, which greatly reduced the cost of sending messages. The importance of the telegraph is only partially indicated by the number of messages sent, which increased from 8,000,000 in 1869 to about 100,000,000 by the end of the century. American

ingenuity also applied telegraphy to various other uses, such as fire alarm boxes, stock tickers, district messenger service, etc.

Of more general service for short distances was the telephone, which was invented in 1876 and was in general use by 1880 with 50,000 receiving telephones in operation ; by 1910 more than 7,635,000 telephones were in use. In course of time the service was extended over longer distances, and in 1892 a line was opened between New York and Chicago.

The first commercially successful Atlantic cable was laid in 1866, although an earlier one had been in operation a few months in 1858. By the end of the century ocean cables crossed both the Atlantic and Pacific and afforded speedy communication with every part of the world.

The postal service of the country expanded during this period even more rapidly than population or industry : from 28,498 post offices in 1860 the number grew to 42,989 in 1880, and 76,688 in 1900 ; by 1914 the number had been reduced to 56,810, because of consolidations made possible by improved transportation facilities. Various improvements in the mail service increased its efficiency, such as free city delivery (1863), postal money orders (1864), mail cars in which sorting of mail was carried on *en route*. Post cards were first issued in 1873, special delivery letters were authorized in 1885, free rural delivery in 1897, motor vehicle service in the larger cities in 1914, and airmail in 1918. Postage rates on letters were reduced from 3 cents per half-ounce, as established in 1850, to 2 cents an ounce by act of 1883. The facilities of the post office were greatly extended by its entrance into the fields of banking and express service, though both were bitterly fought by the interests affected. A postal savings system was introduced in 1910 to provide small savers, especially immigrants, with a place for the deposit of their savings without risk of loss ; the rate of interest on deposits was purposely fixed at the low rate of 2 per cent per annum so as not to compete with savings

banks. In 1913 the parcel post system was added. Cheap and efficient postal service was an invaluable aid in promoting the industrial growth of the country. Improved means of transportation and communication were accompanied, too, by a growth in the amount of advertising matter, and of books and newspapers, as it was one of the main factors in their speedy and economical distribution. The newspapers of the United States increased from about 400 in 1860 to 10,000 in 1880, and to 23,000 in 1911.

SUGGESTIVE TOPICS AND QUESTIONS

1. What part of the country showed the most rapid railway growth after the Civil War? Why? [A. T. Hadley, 37-38.]
2. Describe the diversion of traffic from the Great Lakes to the railroads, and give all of the reasons. [G. C. Tunell in *Journal of Political Economy*, V, 340.]
3. Was the policy of land grants in aid of railroads successful? Why was it discontinued? [H. C. Adams, *Science of Finance*, 258; J. W. Starr, chap. 2.]
4. Did the United States ever get back the money loaned to the Pacific railroads? [J. B. Davis, *Union Pacific Railway*, chap. 8, *Annals*, VIII, 259.]
5. Describe the principal consolidations that took place during this period. [Hadley, chap. 5.]
6. What is pooling? Should it be permitted? [Hadley, 74, 91, 143; W. C. Noyes, *American Railroad Rates*, 146.]
7. What were the principal pools of the seventies, and upon what basis arranged? [Johnson, chap. 16; Hadley, chap. 5.]
8. What were the so-called differentials? In whose favor did they operate? [Hadley, 95-98.]
9. Why were discriminations granted by railroads? Do you know of any cases where this was done? [*Industrial Commission Report*, IV, 5-7.]
10. What is meant by a business of "increasing returns"? Is the railroad a business of this kind? [Adams, *Science of Finance*, 394.]
11. What objections are there to the granting of passes to public officials? to private individuals?
12. What was the so-called Granger legislation? Why was it passed and what effect did it have? [W. G. Moody, *Land and Labor*, chap. 3; E. W. Martin, *History of the Grange Movement*, part 6.]
13. Describe the building and completion of the Pacific railroads. [Davis, *Union Pacific Railway*, chap. 5.]

14. Make a table on Transcontinental Railroads, including the Union and Central Pacific, the Southern Pacific, the Northern Pacific, the Great Northern, and the Santa Fe. Use these headings: Road, Date Completed, Builder, Terminals, Mileage, Government Aid.

15. What was the Credit Mobilier? [Davis, chap. 6; J. B. Crawford, *Credit Mobilier of America*.]

16. Tell about the first invention of the telephone. Was Bell entitled to the credit and profits? [E. W. Bryn, *Progress of Invention*, Encyclopedia.]

17. Compare transportation by water and rail from Chicago to New York as to speed, cost, etc. What effect did these have on traffic? [H. T. Newcomb, *Railway Economics*, 35.]

18. What were the jetties at the mouth of the Mississippi River, and for what purpose were they built?

19. Describe the laying of the Atlantic Cable.

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CHAPTER XXIV

CURRENCY AND BANKING

The immediate problem, upon the outbreak of the Civil War, was how to finance that struggle, and the answer as given by the North and the South differed in degree rather than in principle. For many years thereafter the main problem in connection with the currency was how to avoid the results of the inflationist policy and teaching. The demand for cheap money showed itself in many ways and led to several interesting experiments.

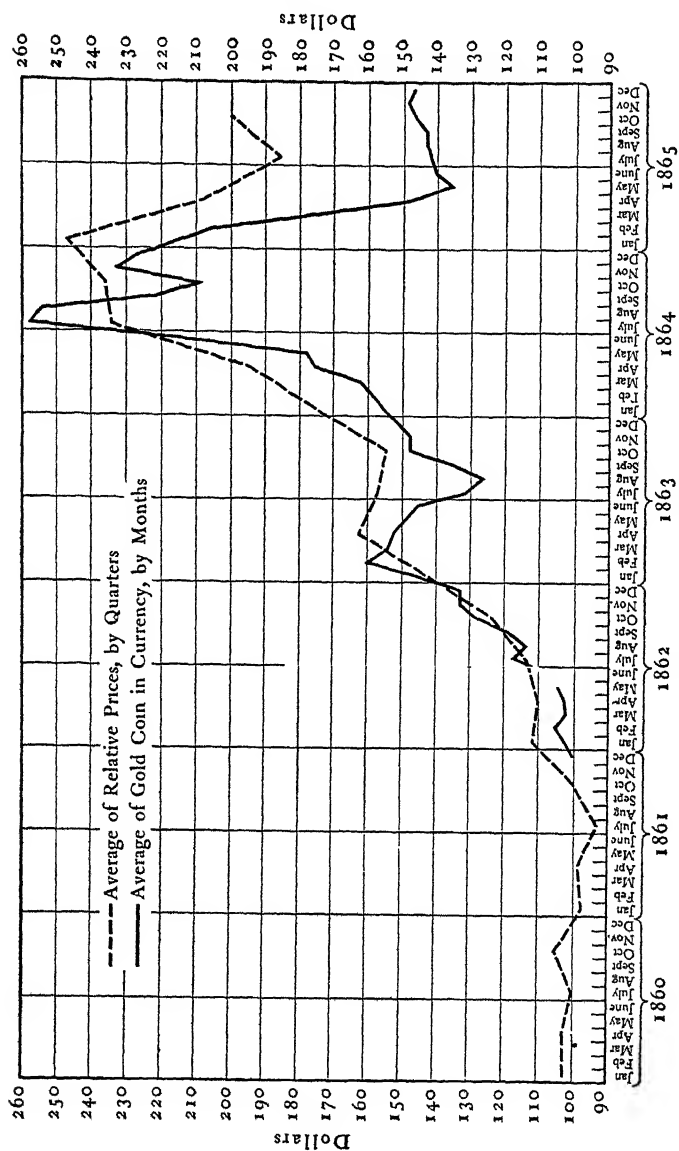
The monetary changes in the period beginning with the Civil War are so important and so intimately connected with the economic history of the time that it becomes necessary at this point to treat the subject of currency and banking with greater fullness than has until now been thought desirable. The issue of legal tender paper money by the government, the establishment of the national banking system, and the silver legislation had far-reaching economic effects upon industry, wages, and the distribution of wealth, as well as striking financial, political, and social results. The connecting principle unifying the monetary history of the United States during the thirty-five years after the Civil War was a persistent demand for more money, and the endeavor to force the Federal government to supply it. Public attention was directed successively to paper money, to silver, and finally to bank-notes as the best method of meeting this demand.

The issue of legal tender notes.— From the adoption of the Constitution to the Civil War the United States government had never issued paper money, though treasury notes, issued three times in this period, had a limited circulation. Gold and silver alone had been made legal tender, and,

after the final establishment of the independent treasury system in 1846, they alone had been used by the government in its financial dealings. But soon after the outbreak of the Civil War the necessities of the Treasury Department led to the issue of legal tender paper money directly by the government, to a total amount of \$450,000,000. At the time these notes were first issued the whole country was using bank-notes issued by some sixteen hundred banking institutions, in addition to gold and silver. Partly because of unwise action on the part of the Treasury Department, specie payments, that is the use of coin in ordinary transactions, had been suspended by both the banks and the treasury at the end of 1861. The United States notes, therefore, were not redeemable in coin, but were true inconvertible paper money. The denomination of the lowest notes issued was steadily reduced, from \$10 in the first to \$5 in the second, and finally \$1 in the third issue, while subsequently provision was made for fractional paper currency, so that within two years from the commencement of the war the entire currency of the country consisted of paper money issued directly by the government.

Financial effects.—One of the first effects of the issue of United States notes or greenbacks was their depreciation or fall in value, with an accompanying rise in the prices of commodities, and a fluctuating premium on gold. The depreciation of the paper currency was increased by the expansion of bank issues and deposits, and was influenced by the success of the Union army, but in general was proportioned to the inflation produced by over-issue.

While the issue of the greenbacks was defended on the ground of the financial necessity of providing the Treasury with the means of payment, the final cost of the war was immensely increased by their use. Because of the depreciation of the paper money the government was compelled to pay higher prices for commodities and labor, while the returns from the sale of bonds, measured in gold, steadily fell off, though the nominal price remained high. In both these



FLUCTUATIONS IN THE CURRENCY PRICES OF COMMODITIES AND GOLD, 1860-1865

ways, therefore, there was a considerable increase in the cost of conducting the war ; the total effect has been estimated at between \$528,000,000 and \$617,000,000. But in addition to this direct and calculable increase there were indirect effects, such as the greater extravagance of Congress in appropriations induced by the easy-going paper money policy. The total cost of the Civil War is given by Dewey as \$6,190,000,000.

Economic effects.—Large as was the financial addition to the cost of the war to the government as a result of the issue of greenbacks, it was small when compared with the burdens imposed by inflated prices upon the people in their private business relations. The increase in relative prices and wages during the war, according to the Aldrich report, was as follows :

YEAR	Prices Simple Averages	Money Wages Simple Averages	Real Wages Simple Averages
1860	100 0	100 0	100
1861.	100 6	100.8	100
1862	117 8	102 9	87
1863	148 6	110.5	74
1864	190 5	125.6	66
1865.	216 8	143.1	66
1866.	191.0	152.4	79

It is evident from this table that, if we take the year 1860 as the base and call general prices in that year 100, general prices continued to rise steadily during the war. The rise affected various articles very differently, however, as the price of some of them increased much more rapidly than that of others ; agricultural products did not advance so quickly or so much as manufactured commodities. Money wages lagged far behind prices, in obedience to a general economic law, and the real wages of the laborers of the country were accordingly greatly reduced. This entailed discontent, labor disputes, and often much real hardship and suffering. The issue of paper money acted like a tax upon the people, but a most unfair tax and one for which there

was no commensurate return to the government. In so far as the government was an employer of labor there was a certain saving at the expense of the workers, but this was more than offset by the loss of the most efficient employees. The pay of the soldiers remained at \$13 a month until May 1, 1864, when it was raised to \$16, a change which fell far short of the actual increase in the cost of living.

In general, workingmen were able in time to obtain advances in their wages, especially in the better organized trades ; in some cases, however, as that of school teachers, ministers, and salaried persons in general, it was difficult to make both ends meet. To some extent it was possible to obviate the pressure of higher prices by substituting some lower-priced article for the more expensive one, but in so far as this necessitated a lowering of the standard of living, it was a most regrettable result of the paper money policy.

The experience of the Confederacy with paper money was similar to that of the Union. The war between the States was financed primarily by means of paper money ; taxation was unpopular and brought in small returns, foreign loans were impracticable for a rebel government and there was insufficient free capital in the South to float domestic loans. Consequently resort was early made to fiat paper money, of which about \$1,000,000,000 were issued before the fall of the issuing government rendered it worthless. Prices rose to fantastic heights and the experiences of the Revolutionary period were repeated.

Contraction of the greenbacks and opposition.— Upon the conclusion of the war, it was thought that the paper money, whose issue had been advocated as a temporary measure, would be withdrawn and specie payments resumed. In 1866 the policy of retiring a certain amount of the greenbacks monthly was begun, and continued until the total amount outstanding had been reduced to \$356,000,000 ; at this point Congress prohibited the further retirement of the notes by act of February 4, 1868. The rise in the value of the greenback and the reorganization of business after the

conclusion of peace had brought about a decline in trade and a commercial depression, which were popularly attributed to the policy of contraction.

Many persons now began to demand that the greenbacks should not be retired, but should be retained as a permanent part of our monetary system. During the serious panic of 1873, heavy pressure was brought to bear upon the Treasury to relieve the banks and the business community by re-issuing the greenbacks which had been redeemed but not destroyed ; accordingly Secretary William A. Richardson re-issued \$26,000,000 in exchange for bonds. The clamor for cheap paper money now became louder, and in 1874 resulted in the passage by Congress of the so-called inflation bill, providing for the increase in the issue of greenbacks to \$400,000,000. When this was vetoed by President Grant, the amount was fixed at the circulation then outstanding — \$382,000,000.

The panic of 1873.—The crisis of 1873 was by no means a financial panic only ; it was the result of general industrial causes which were not confined to the United States. For four years there had been unprecedented activity in agriculture, manufactures, and transportation, and enormous amounts of capital had been invested in fixed forms as railways, docks, and factories. Many of these were built in advance of immediate needs and did not yield a return, while the opening up of new land in the West threw older areas out of cultivation and rendered them less valuable. As in 1857, the most serious weakness was shown in connection with railroad building, which was too rapid to be healthy. The period of rising prices under the inflated currency led to one of the most speculative and extravagant periods in our history, which was restrained by no strong public sentiment. Those were the days of Erie, of the Credit Mobilier, and other similar speculations. The same causes also induced waste and extravagance in private life ; conservatism and economy were forgotten.

Finally the bubble burst. On September 13th a stock

brokerage house failed, followed a couple of days later by two important banks. By the 20th the excitement was intense and runs began on several banks. The stock exchange was closed for ten days, and at the same time the banks united in the issue of clearing house certificates, which helped to relieve the money stringency. Nevertheless on September 24th the New York banks were forced partially to suspend specie payments. There ensued a period of liquidation, marked by the failure and bankruptcy of many banks, railroads, and business houses all over the country. The severe and unprecedented depression which followed continued in most branches of business until 1878, and in some lines until 1879. By that time the country had caught up with the earlier excessive investments, and again entered upon a period of rapid industrial advance.

Resumption of specie payments.—The fall in prices from the speculative heights of 1873 caused a renewal of currency discussions. The agitation for an irredeemable paper currency led in 1876 to the formation of the National Greenback Party, which reached its greatest strength in 1878, when it polled more than 1,000,000 votes, chiefly in the newer West and the South. Before this, however, the Republican Party had passed the Resumption Act of January 14, 1875, which provided for the accumulation of a gold reserve from surplus revenues and the sale of bonds, for the purpose of redeeming the greenbacks; provision was also made for a partial retirement of these notes. Before the plan could be carried through Congress again interfered, in 1878, to check the policy of contraction, and by the act of May 31 fixed the amount of greenbacks at the number in circulation on that day, \$346,681,016, at which point it has ever since remained.

The resumption of specie payments was rendered certain by the accumulation of a gold reserve of \$133,000,000, which a fortunate increase in our grain exports enabled us to keep and enlarge. On January 1, 1879, the Treasury began the redemption of greenbacks in gold. Because of the pro-

visions of the law, however, the greenbacks, when redeemed, were not to be destroyed, but "must be re-issued." They remained, therefore, a permanent part of our money supply, and continue so today — one of the legacies of the Civil War.

The national banking act.—When the war broke out the circulating medium of the country consisted of coin and of bank-notes. These notes were issued by some sixteen hundred institutions, operating under State laws, and had only a local circulation at best, while some of them were nearly worthless. To replace these and to provide a safe national currency of uniform value was highly desirable, and was one of the causes which led to the establishment of the national banking system. More important was the necessity of finding a market for the United States bonds, whose sale formed the chief reliance of the government for carrying on the war. To gain this end, by the act of February 25, 1863, national banks were required to buy government bonds upon which to base their note issues.

The characteristic point in the new system was the provision that the banks organizing under a Federal charter must buy United States bonds and deposit them with the government ; they were then permitted to issue bank-notes up to 90 per cent of the market value but not in excess of 90 per cent of the par value of the bonds. Other provisions regulated the capital, the liability of stockholders, the amount of reserve, examination of accounts, etc. Because of the slowness with which banks came into the system, the issue of notes by State banks was prevented by a tax of 10 per cent annually (act of March 3, 1865). A virtual monopoly of bank-note issue was thus obtained by the national banks. The other functions of banking were left open to banks chartered by State authority and to private banks.

History of the national banking system.—The circulation of the national banks did not increase so rapidly as had been expected ; in 1873, when high-water mark was reached, the outstanding circulation amounted to only \$339,000,000.

This failure to expand was due chiefly to the rapid rise in the price of government bonds, which made it more profitable to the banks to sell the bonds at a profit and retire their notes than to hold the bonds and keep their notes in circulation. By 1876 the circulation had been reduced to \$291,000,000, and while it increased somewhat during the next few years, a steady decline set in about 1883 which continued uninterruptedly until the bank-note circulation had declined to \$123,000,000 in 1891. This shrinkage was brought about largely by the payment of the national debt as it fell due and the consequent retirement of the bonds on which the notes were based. An effort was made in the act of July 12, 1882, to make the conditions of note-issue more profitable to the banks, but popular hostility to the national banks was still so great that little was done.

During the next two decades various proposals were made to secure a larger and more elastic note-issue : the repeal of the tax on circulation of 1 per cent ; funding of the outstanding United States bonds into other bonds bearing a lower rate of interest and running for a longer time ; deposit of approved State or municipal bonds instead of national bonds ; issuance of notes by banks on their general credit, to be secured by a general safety fund, to which all the national banks should contribute. There was, however, no further legislation upon the subject, and with the steady reduction of the debt it seemed as though the national bank-note circulation would soon have to disappear.

But the act of March 14, 1900, gave a new lease of life to the system : circulation might be issued to the full face value of the bonds deposited ; part of the existing national debt was to be refunded in new 2 per cent thirty-year bonds, and upon all new circulation based on these bonds the tax was reduced from one to one-half per cent per annum. At the same time that note issue was made more profitable, the minimum amount of capital was reduced from \$50,000 to \$25,000 in towns with a population not exceeding 3000. These inducements led to a considerable increase in the num-

ber of national banks, as well as to an enlarged circulation. Little was done by the act, however, to make the monetary system more elastic, while the final reform of the national banking system was simply postponed.

The demonetization of silver.—In response to a suggestion made at the international monetary conference, held in Paris in 1867, a movement was begun in the United States in 1869 to revise the mint laws. These had not been changed since 1853, and some of the coins had become obsolete. A bill was accordingly prepared by the deputy comptroller of the Treasury, submitted to experts for advice, and introduced into the Senate on April 25, 1870. After debating the measure for five sessions Congress finally enacted it into law February 12, 1873. The most important provision of the act was the section dropping the standard silver dollar from the list of coins to be coined by the United States. At the time the act attracted little attention, for we were using neither silver nor gold, greenbacks and national bank-notes being the only forms of money in circulation. Not only that, but for forty years the silver dollar had not been in circulation, as the bullion in a silver dollar was worth about \$1.02 in gold, and it was therefore more profitable to melt up the silver dollars than to keep them in circulation. In the eighty-one years since the establishment of the mint in 1792 only 8,031,238 silver dollars had been coined and not one of these was in circulation in 1873.

A number of causes soon combined to bring the demonetization of silver to general notice. The adoption of the gold standard and the sale of her silver by Germany (1870-71), the limitation of the coinage of silver by the Latin Union (1873), the demonetization of silver in Holland and the Scandinavian peninsula (1875), together with a great increase in silver production from newly discovered but extraordinarily rich mines in Nevada, brought about a fall in the price of silver. In 1874, for the first time in a generation, the silver dollar was worth more as coin than as bullion, and the inflationists who desired more money, defeated in their

efforts to obtain the issue of additional greenbacks, began to demand the coinage of silver. In this demand they were strongly seconded by the silver mine owners, who were bringing a largely increased supply to a falling market. There were also many who thought that the panic of 1873 and the prolonged stringency in the money market were due to the "crime of '73," and who honestly believed that the country needed more money in circulation. As a result of these causes there began about 1876 a vigorous agitation for the "remonetization," or free coinage, of silver.

The Bland-Allison Act of 1878.—Under the leadership of Richard P. Bland, an ardent advocate of silver, a bill was passed by the House of Representatives in 1877 providing for the free and unlimited coinage of silver at the ratio of 16 to 1. In the Senate, where the free coinage sentiment was not so strong, it was amended so as to provide for the coinage of a limited amount of silver, and in this form finally became law, February 28, 1878. The act provided for the purchase of silver bullion by the Secretary of the Treasury, not less than \$2,000,000 nor more than \$4,000,000 worth per month, and its coinage into silver dollars of 412½ grains. Provision was also made for the issue of silver certificates in denomination of \$10 and upwards, upon deposit of silver dollars. As it was found impossible to keep more than a small part of the silver dollars in circulation, the lowest denomination of the silver certificates was reduced in 1886 to \$1, and in this form most of the silver purchased went into circulation. The minimum amount of silver provided by the law was purchased each month; this resulted in an average increase in the circulating medium of the country of about \$30,000,000 per annum. During the twelve years of the operation of the Bland-Allison Act there were coined 378,166,000 silver dollars.

We have seen that the amount of greenbacks had been permanently fixed in 1878, and that the national bank-note circulation steadily declined during the eighties. As the industrial development of the country was proceeding during

this period at an unprecedented rate, with the exception of the short depression of 1884, it is probable that this addition to our money supply in the form of silver merely kept pace with our growing monetary needs. It is probably also true that if this silver had not been coined its place would have been filled largely, if not wholly, by the importation of gold.

The Sherman Act of 1890.—By 1890 the silver advocates were strong enough to force more favorable action in Congress, and on July 14 of that year they obtained the passage of the so-called Sherman Act. This provided for the purchase by the Secretary of the Treasury of 4,500,000 ounces of silver each month, and the issuance in payment therefor of treasury notes of full legal tender character. These notes, which were based upon deposit of silver bullion, were nevertheless made redeemable in either gold or silver coin. The amount of silver purchased under this act was almost double that required by the silver act of 1878, amounting to about \$50,000,000 per annum. During the three years of its operation, until its repeal on November 1, 1893, there were issued \$155,931,002 in treasury notes. If the additions to the currency under the previous law were sufficient, the increased supply forced upon the country by the Sherman Act was too much. Gold began to be crowded out of circulation ; in the first six months of 1891 more than \$70,000,000 in gold was exported from the United States. Much of this gold was drawn from the Treasury, and the gold reserve, which had been created under the resumption act for the redemption of greenbacks, but which was now being used to redeem the Treasury notes of 1890 also, was reduced by June, 1891, to \$118,000,000 ; by January, 1894, it had fallen below \$66,000,000.

Doubts soon began to be entertained as to the ability of the government to redeem its promises, and the presentation of greenbacks and treasury notes at the Treasury for redemption in gold began on an unprecedented scale. During this period the revenues of the government were greatly reduced by the passage of the McKinley and Wilson tariff acts, while

extravagant appropriations on the part of Congress prevented the accumulation of funds to meet this drain. Partly as a result of these causes, but more especially as the result of over-speculation, inflated credit, and over-investment of capital in risky enterprises, the panic of 1893 broke upon the business world.

The panic of 1893.—The financial crisis of 1893 was one of the most severe the country had ever experienced; trade and industry were disorganized, and every department of industrial life was affected. The price of silver fell greatly, because of the closing of the India mints; Western silver mines were shut down, and their employees thrown out of work. During the year 573 banks and banking institutions failed, mostly in the West and the South. Gold and other forms of currency were hoarded and a premium of 4 per cent was offered by money-brokers for cash. Commercial failures increased greatly; from 4171 in the six months, April 1 to October 1, 1892, they grew to 8105 during the same period in 1893, with liabilities of \$284,663,624, as against \$41,110,322 in the previous year. Several important railroad systems — the Philadelphia and Reading, the Erie, the Northern Pacific, and the Union Pacific — failed; one-fourth of the railway capital of the country was in the hands of receivers; earnings fell off and new construction was suspended. The production of both coal and iron declined in consequence of the lessened demand. Finally, the farmers were involved in the general distress by the ruinous failure of the corn crop in 1894, and the falling off of the European demand for wheat, the price of which fell to less than fifty cents a bushel on the farm. Want and distress were general; relief work and assistance were provided for the unemployed in most of the large cities. Strikes, riots, and labor demonstrations, such as the Chicago strike and Coxey's army, evidenced the widespread nature of the distress and the industrial unrest.

The uncertainty as to the ability of the government to redeem the greenbacks and treasury notes in gold prolonged

the business unrest ; to obtain the necessary gold for this purpose, and to meet current deficits, the Treasury sold bonds amounting to \$262,000,000 in the years of 1894-96, and was able to keep the various forms of money on a parity. The decisive defeat of the free-silver advocates in the elections of 1896 put a practical end to the agitation for cheap money and restored business confidence.

The Currency Act of 1900 and gold discoveries.— The free-silver sentiment in the Senate made it impossible to enact any legislation reforming the monetary system until 1900. By the act of March 14 of that year, the gold standard was definitely adopted ; provision was made for the increase of the gold reserve fund to \$150,000,000, and its application exclusively to redemption purposes, while fairly effective though clumsy methods for maintaining the fund were authorized. At the same time the gold discoveries in Alaska in 1898 brought about a great increase in the production of that metal and its circulation in the United States ; in the three years 1898 to 1900, inclusive, there was coined at the United States mints more than \$288,000,000 in gold, as against a five-year average since 1873 of \$258,000,000. This increase in our money supply, together with the additions to the bank-note circulation, brought up the per capita circulation from \$23.85 in 1893, when the purchase of silver by the government ceased, to \$34.93 on July 1, 1914.

Prosperity and rising prices.— One of the most striking phenomena of our modern industrial system has been the periodic recurrence of disorganizations of business known as crises. They are essentially a product of capitalistic methods of production and of the credit system, and have been especially frequent since the beginning of the nineteenth century, recurring at fairly regular intervals of about ten years. It is noteworthy that crises usually occur after a period of business prosperity, when prices are high, credit is easy, and employment general, and are followed by a time of depression, unemployment, and low prices. The panic of 1893 was followed by a long period of depression, but about

1898 an era of prosperity set in. There was a series of good harvests, an expansion of manufactures, steady employment at good wages, a growth in immigration, and an increase in the supply of money, and rising prices.

The panic of 1907.—As is usual in such circumstances, the rise in prices induced speculative investment and over-expansion. The almost continuous increase for ten years in the prices of goods and securities, interrupted only briefly by the temporary stress of 1903, stimulated production for a further rise ; and this was further promoted by the formation of industrial combinations and the payment of huge sums in profits and dividends. Again the business world lost its customary caution and plunged into reckless excesses. By 1906, however, the first signs of approaching disaster were visible. The San Francisco earthquake and fire destroyed an immense amount of capital, a loss which was widely distributed through insurance. Increasing difficulty was experienced in marketing securities even of the very highest class, showing that the demand for capital was outstripping current savings. When the banks began to contract their loans in March, 1907, there resulted the so-called "rich men's panic," caused by the necessity these were under of sacrificing high-class collateral in order to meet their obligations. Severe declines took place in all the leading stocks.

In October several banks and trust companies, whose management was identified with speculative interests, fell under suspicion. Runs began upon three of the trust companies in New York, to which tardy assistance was granted by other banks. Distrust spread from New York to the rest of the country ; other banks called for the shipment of currency and frightened depositors demanded their money. The banks all over the United States partially suspended specie payments. As is inevitable in a country where three-quarters of the business is done on a credit basis, there is never enough money to go around when everybody demands cash. Various substitutes were used during this period, but the lack of any legitimate banking methods by which additional cur-



HYDRAULIC GOLD MINING NEAR TELLURIDE, COLORADO

The placer deposits are frequently mined by this process, a powerful stream of water washing the dirt and gravel into sluices, where the heavy gold is held by riffles and then collected by means of mercury. It is vastly more economical than the old hand methods.

rency might be quickly put into circulation forced upon public attention the inelasticity of our banking system.

Conclusion.— We may now try to summarize briefly our conclusions upon this difficult and debatable subject.

To obtain the fullest development of the resources of a country and the freest interchange of commodities and services an adequate supply of the media of exchange is essential. Just how much constitutes enough is, however, a matter of contention. In the undeveloped and sparsely settled sections of our country, where capital is scarce and banking facilities are inadequate, there is a real need for considerable actual cash for business transactions, and there has thus always been a strong demand for cheap and abundant money. Before the Civil War this took the form of a demand for issues by State banks. When the government began the issue of greenbacks, and especially after the restriction of State bank-notes, the inflationists naturally looked to the

Federal government for assistance ; as they did not regard the national banks with favor they did not wish an increase in the issue of national bank-notes. After the failure of the efforts to inflate the currency by means of new issues of greenbacks, this party naturally turned to the coinage of silver, which was now falling in price. Failing to obtain absolutely free coinage of that metal, they were yet able to bring about the purchase by the United States government, from 1878 to 1893, of nearly five-sixths of the entire silver production of the country.

With the filling up of the West, the large additions of new gold to our money supply, the provision of more adequate banking facilities in the sparsely settled districts, and the enactment of positive legislation on the subject by Congress, the demand for further inflation of the currency by direct action of the government was temporarily hushed. It must be said that the net results of efforts of the government to provide the necessary money for the people were disastrous. For the maintenance of an adequate supply we cannot do better than trust to normal economic forces.

SUGGESTIVE TOPICS AND QUESTIONS

1. What was the cost of the Civil War ? [B. Rand, *Economic History*, 520 ; H. C. Adams, *Public Debts*, 127-133.]
2. How was the war debt paid ? [Payment of War Debt, in Rand, *Economic History*, 522 ; D. R. Dewey, 352-358.]
3. Was the issue of greenbacks necessary ? [Dewey, 284-290 ; Mitchell, *History of the Greenbacks* ; H. White, *Money and Banking*, 148-165.]
4. Why did the issue of greenbacks drive out gold and increase prices ? [Dewey, 292-297 , C. Gide, *Principles of Political Economy*, 237-241.]
5. Is the issue of government paper money equivalent to an increase of wealth ? [Gide, 265-269 ; F. A. Walker, *Political Economy*, 159-174.]
6. State the monetary demands of the Greenback Party ; of the Populist Party. Do you approve of these demands ? [Dewey, 378-382 ; J. J. Lalor's *Cyclopaedia*, II, 418-419 ; *Atlantic Monthly*, LII, 521-530.]
7. What is the present status of the greenback ? [Dewey, 469-471 ; Mitchell, *History of the Greenback*.]

8. Describe the organization and working of a national bank with which you are acquainted. [White, *Money and Banking*, 406-411.]

9. What provisions exist to secure the safety of the national bank notes? [Dewey, 375, 470.]

10. What is meant by the free coinage of silver? Has it ever existed in the United States? [D. K. Watson, *History of American Coinage*, chap. 5.]

11. Was the act of 1873 passed secretly as the result of a gold conspiracy? [White, 213-223; D. K. Watson, chap. 9; Dewey, 403-407.]

12. Why did silver fall in price after 1871? [Laughlin, chaps. 8-12; Watson, 119.]

13. How much did the per capita circulation of money increase from 1878 to 1900? Is it a good thing for a country to have a larger circulation of money? [A. T. Hadley, *Economics*, 214; F. A. Walker, *Money, Trade, and Industry*, chap. 4.]

14. Does the government make any effort to obtain gold for circulation? Why is it brought to the mint to be coined? Are we likely to get enough if we leave it to individuals? [Bullock, *Introduction*, 271-274; Seager, *Introduction*, 366.]

15. Why is the demand for money greater in sparsely settled communities than in thickly settled States? [C. J. Bullock, *Monetary History*, chap. 8; F. W. Taussig, *Silver Situation*, 113.]

16. Name all the different kinds of money in the United States and the amount of each in circulation. [Annual Report of Secretary of Treasury.]

17. Could you suggest any improvements or reforms in our monetary system?

18. What was the independent treasury system? [J. J. Lalor, *Cyclopedia*, II, 493-496; Encyclopedias.]

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CHAPTER XXV

MANUFACTURING FOR HOME USE

The expanding population provided a growing home market, which was now definitely reserved to American manufacturers. For them the main problem was one of expansion sufficient to meet the increasing demand. This called for readjustments, improvements in processes, larger sources of raw materials, and better agencies of transportation and exchange.

The growth of manufactures.—The most striking feature in the industrial development of the United States has been the enormous growth of manufactures, both absolutely and relatively to other branches of industry. Between 1850 and 1910 the population of the country quadrupled, and the products of agriculture trebled in value. But in the same period manufactures showed an increase of seven times in the number of wage-earners, and of twenty times in the value of products. The growth of manufactures may be shown by statistics, though the remarkable diversity of industries and increase in the volume of products is not revealed by such a method. The following table shows the progress in manufactures from 1850 to 1910 :

GROWTH OF MANUFACTURES AND OF HOME CONSUMPTION, 1850-1910						
Year	Value of products of national manufactures (in thousands)	Amount of capital invested (in thousands)	Average number of wage-earners	Importation of foreign Manufactures	Consumption of domestic manufactures, per cent	Consumption of foreign manufactures, per cent
1850	\$1,019,110	\$ 533,245	958,079	\$130,838,280	88 39	11 61
1860	1,885,862	1,009,856	1,311,246	261,264,310	87 57	12 43
1870	4,232,325	2,118,209	2,053,996	308,363,496	93 14	6 86
1880	5,369,579	2,790,273	2,732,595	423,699,010	92 58	7 42
1890	9,372,437	6,525,156	4,251,613	230,685,581	97 60	2 40
1900	13,014,287	9,835,087	5,316,802	208,126,341	98 46	1 54
1910	20,671,052	18,428,200	6,615,046	367,723,000	98 21	1 79

The Civil War as an industrial revolution.— We have already seen that the two decades prior to the Civil War had witnessed a rapid growth in the United States in manufacturing industries, which were yearly becoming more adequate to meet the home demands. It was certain that a nation which possessed the wonderful natural resources of this country would not long continue to purchase its manufactured commodities abroad. Sooner or later it would manufacture for itself most of those things for whose production it was pre-eminently fitted by reason of the possession of boundless and cheap raw materials. This natural but slow process was, however, sharply altered by the Civil War, when, by the imposition of prohibitive tariff duties, the growth of domestic industries was greatly hastened. The industrial revolution thus inaugurated has been compared with that in England one hundred years before. It certainly marks a turning-point in the economic development of the country as distinct as that in its political life, and more significant in its effects than the earlier industrial revolution introduced in this country by the restrictive period fifty years before.

An official report in 1869, quoted by Dewey, declared that "within five years more cotton spindles had been put in operation, more iron furnaces erected, more iron smelted, more bars rolled, more steel made, more coal and copper mined, more lumber sawn and hewn, more houses and shops constructed, more manufactories of different kinds started, and more petroleum collected, refined, and exported, than during any equal period in the history of the country." And with the exception of the four or five years following the panic of 1873, a similar expansion characterized the next decade. The growth in the number of cities of 8000 inhabitants and over from 141 in 1860 to 286 in 1880 and to 768 in 1910 simply illustrates somewhat differently the increasing application of the people to manufacturing and other industrial pursuits. Most of this expansion occurred, however, in the two decades 1880-1900, which witnessed the discovery and utilization of the natural resources of the country on an

unprecedented scale, the extension of the domestic market by the settlement of the West, the improvement and cheapening of transportation facilities, and the completer application of labor-saving devices.

The United States as a manufacturing nation.—This rapid industrial progress enabled the United States to outstrip all her rivals in the volume of her manufactures; from fourth place in 1860 she attained first rank by 1894, and thereafter was the leading manufacturing nation in the world. The following table from Mulhall's *Industries and Wealth of Nations* shows the relative rank of the United States in comparison with the foremost industrial nations of Europe :

MANUFACTURES IN THE UNITED STATES AND FOREIGN COUNTRIES				
	MILLIONS OF DOLLARS			
	1820	1840	1860	1894
United Kingdom..	1411	1883	2808	4263
France.....	1168	1606	2092	2900
Germany.....	900	1484	1995	3357
Austria.....	511	852	1129	1596
Other States.....	1654	2516	3455	5236
Europe.....	5644	8341	11,479	17,352
United States.....	268	467	1907	9498
Total.....	5912	8808	13,386	26,850

The industrial supremacy of the United States is still more evident if we compare particular industries. In 1890 she overtook Great Britain in the production of both pig iron and steel, in which England had hitherto been easily first; in 1900 this country produced nearly twice as much pig iron and more than twice as much steel as her insular rival, turning out about one-third of the world's supply of each. Not merely in the production of raw cotton, of which the United States raised more than 60 per cent of the world supply, but

in the manufacture of cotton goods, hitherto England's chief industry, this country made great gains ; in 1900 our domestic manufactures used about 260,000,000 pounds of raw cotton more than the English mills, although the value of their product was greater, because they turned out finer grades of goods. The basic industry for all others, and the one which will probably determine the industrial supremacy of the nations, was the production of coal. In this the United States was surpassed by Great Britain until 1899, but after that time we led the world, producing about one-third of the total supply.

Factors in the industrial development.—The cause which had the most immediate effect on the rapid growth of manufacturing industries was the imposition of heavy tariffs on imported manufactured goods, by which the home market was practically reserved for domestic manufacturers. Whatever views are held as to the wisdom of a protective tariff, it must be admitted that the restrictive legislation dating from the Civil War hastened the development of those branches of manufacture which received protection. The war demands for food, clothing, arms, and similar commodities, the rise of prices occasioned by the over-issue of legal tender paper money, and other causes gave additional stimulus at the beginning of this period.

More important, however, because more fundamental, were the changes going on in other parts of the industrial organism, which have been traced in the foregoing chapters. Such were the improvements in transportation facilities, the better means of communication, the establishment of a national system of banking and credit, and a more efficient marketing system. The opening up of the West and the immense expansion of our grain production, together with the development of improved means of transportation between the manufacturing and agricultural sections of the country, increased the purchasing power of the West and assured the Eastern manufacturers a market for their goods. After the cessation of hostilities the South, too, made large

demands upon the North for capital in various forms, as well as for manufactured articles of every description, while the exploitation of the mines, forests, and other natural resources of the country furnished the manufacturers with cheap raw materials.

The freedom of interstate commerce and absence of restrictive traditions should also be mentioned as factors contributing in no small degree to the industrial development of the country. "The mainland of the United States is the largest area in the civilized world which is thus unrestricted by customs (duties), excises, or national prejudice, and its population possesses, because of its great collective wealth, a larger consuming capacity than that of any other nation." Finally, credit should be given to the character of the people — their ingenuity, inventiveness, and energy — qualities which were being trained and developed by an admirable system of compulsory free education.

Growing self-sufficiency of the United States.— Still more significant, however, than the mere physical bigness of our industries was the increasing adequacy of our production to the home demand. In the case of food products and raw materials the country had long supplied its own needs : wheat, corn, cotton, tobacco, and other agricultural products had since colonial days been raised in sufficient quantities to yield an exportable surplus ; while the resources of coal, iron, copper (more recently), lumber, and other raw materials of manufacturing were just beginning to be exploited on a large scale. In the case of manufactured goods, on the other hand, we had always imported large quantities from England and Europe. Largely as a result of the restrictive war tariff the proportion of domestic manufactures consumed in the United States greatly increased — from 88 per cent in 1860 to 93 per cent in 1880 and to 98 per cent in 1900. The articles imported consisted principally of the finer grades of textiles, and of luxuries. And yet even of these the domestic manufacturers were every year more nearly meeting the domestic demand. Thus — to select

only one instance — the proportion of silk goods made in the United States of the whole quantity consumed grew from 13 per cent in 1860 to 38 per cent in 1880, and to 77 per cent in 1900.

Concentration in large establishments.—Not merely did the manufacturing industries of the United States show a rapid growth, but at the same time there took place a startling concentration of manufactures, especially along certain lines, into a relatively smaller number of establishments. This tendency had been in evidence more or less since 1850, but was greatly accelerated during the last two decades of the century. It was most marked in the case of the iron and steel industries, cotton manufactures, and leather goods, but was noticeable also in the manufacture of agricultural implements, boots and shoes, carpets, glass, malt liquors, paper, shipbuilding, slaughtering and meat packing, tobacco, and textiles other than those named earlier in the list. A few industries, which were essentially local in their nature, showed no such tendency, such as flour and grist mills, cheese and butter factories, etc. ; but with few exceptions it was the prevailing characteristic of manufactures in the United States. The extent to which this large-scale production proceeded may be presented in statistical form for all manufacturing industries, as follows:

ALL MANUFACTURES IN THE UNITED STATES							
	1850	1860	1870	1880	1890	1900	1910
Average product of each establishment	\$8,280	\$13,420	\$16,780	\$21,100	\$28,070	\$54,979	\$76,993
Average capital of each establishment	\$4,330	\$7,190	\$6,720	\$10,960	\$19,020	\$43,360	\$68,687
Average number of employees of each establishment	7 7	9 3	8 1	10 6	13 8	20 5	24 6

Advantages of large-scale production.— This concentration of manufactures in large establishments was caused by certain distinct advantages enjoyed by large-scale production. Foremost among these were economies of various

kinds. The operation of a business on a large scale permits the use of expensive and complicated machinery, its constant employment, the minute division of labor, the employment of more skilled management and superintendence, the utilization of by-products, and the economical purchase of raw material and marketing of the finished product. The modern factory requires a large investment in expensive machinery ; from the statistics just presented it is seen that while the average number of employees per establishment grew about 40 per cent between 1850 and 1910, the average investment of capital increased more than 500 per cent. This indicates that the tendency in manufacturing was towards machine production. In a large establishment every machine is utilized to the utmost, there is no needless duplication of machinery such as would occur for several small plants, while expensive machines to carry on relatively small processes can be profitably installed. So, too, in the labor employed a high degree of specialization is possible, and the peculiar aptitude of each man is given scope to develop itself. In experimenting with and inventing new machinery and methods the large establishment also has an advantage.

One of the most striking economies is effected in the utilization of waste products, which is profitable only when industry is managed on a large scale. This was carried farthest in the oil-refining and meat-slaughtering industries, but was also practiced extensively in the iron and steel, lumber, paper, textile, cottonseed oil, leather, brewing, and other industries. In the large meat-packing houses, for instance, much that had formerly gone to waste, as hoofs, horns, bones, hair, bristles, fat, intestines, and blood, was now converted into soap, glue, fertilizers, albumen, knife handles, combs, buttons, oils, oleomargarine, glycerine, etc. ; but many of these by-products remained unutilized even at the end of the period in houses of small capacity.

The localization of industries.—The manufactures of the United States were confined chiefly to that part of the country north of the Potomac and the Ohio and east of the

Mississippi rivers, and were especially dense in southern New England, southern New York, New Jersey, and eastern Pennsylvania. This predominance in the northeastern section of the country may be accounted for on historic and economic grounds which have already been described ; but there were asserting themselves at the same time other industrial tendencies which are less obvious but no less interesting. These were the localization of industries in particular States and cities, the specialization of certain localities, and the shifting of industrial centers. The following industries were highly localized in 1900, more than one-half of the total value of the products in the United States being manufactured in specified States : collars and cuffs and leather gloves and mittens in New York ; plated and britannia ware, clocks, and brassware in Connecticut ; oyster canning and preserving in Maryland ; coke and iron and steel in Pennsylvania ; safes and vaults in Ohio ; whips in Massachusetts ; and vinous liquors in California.

Within these States the localization in cities was carried still further : thus 85 per cent of the collars and cuffs were manufactured in Troy, N. Y. ; 64 per cent of the oyster canning was carried on in Baltimore ; 54 per cent of the gloves were made in the adjoining cities of Gloversville and Johnstown, N. Y. ; 48 per cent of the coke in Connellsville, Pa. ; 48 per cent of the brassware in Waterbury, Conn. ; and 46 per cent of the carpets in Philadelphia. Not only did these and other industries become localized in a few places, but certain cities specialized in particular industries, devoting themselves almost exclusively to the production of one thing. More than 75 per cent of the entire number of wage-earners in the following cities in 1900 were engaged in the specified industry : South Omaha, Neb., slaughtering and meat packing ; McKeesport, Pa., iron and steel ; East Liverpool, Ohio, pottery ; Fall River, Mass., cotton goods ; Brockton, Mass., boots and shoes ; Gloversville, N. Y., gloves.

Causes of localization.— The tendency towards localization has been apparent ever since the beginning of colonial manufactures, and not merely in this country but in other places as well. While sometimes it seems as though the choice of a location for a young industry were purely accidental, it will generally be found to have been determined by economic causes. The following seven advantages, as given in the census of 1900, may fairly be assigned as the general causes :

(1) Nearness to materials, as in the case of the paper, tanning, slaughtering, pottery, oyster canning, and tobacco industries, each of which was situated in the vicinity of the chief source of supply of the raw materials.

(2) Nearness to markets ; this was best illustrated by the growth of manufactures in the neighborhood of centers of population, especially of commodities which would not bear transportation.

(3) Water power ; while of great influence in the early days of manufacture, this factor had been steadily diminishing in importance, though the growing use of electricity as a motive force was again bringing it into prominence in the last two decades. The presence of coal, on the other hand, was a decisive factor in many industries. In an age of machinery, mechanical power is the dominant factor, and manufactories multiply where waterfalls and coal fields abound.

(4) A favorable climate ; thus Fall River and New Bedford offered exceptional advantages for the manufacture of cotton by reason of their even, moist climate.

(5) A supply of labor ; for this reason it was difficult to establish manufacturing industries in the West and to a less degree in the South, because of the inadequate or inefficient labor supply.

(6) Capital available for investment in manufactures ; while outside capital can usually be obtained, a supply of local capital is often essential ; the growth of the cotton industry in New Bedford about 1850 has been ascribed to

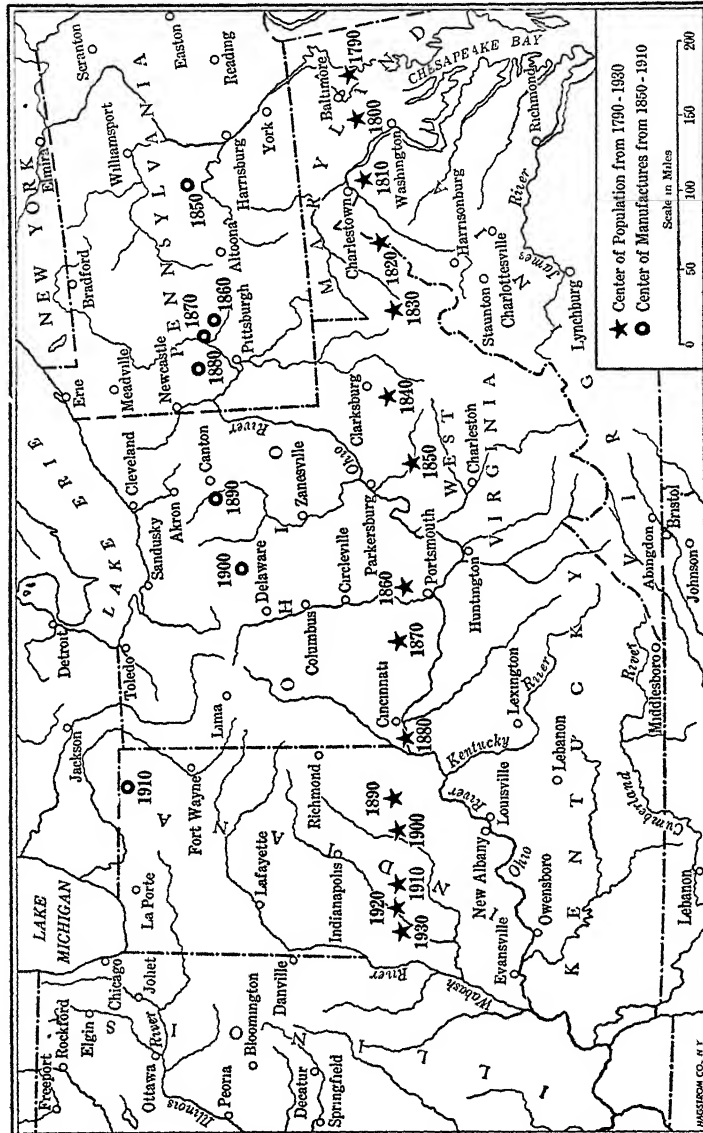
the supply of local capital set free there by the decline of the whaling industry.

(7) The momentum of an early start ; the leadership of Lynn, Mass., in the boot and shoe industry, which dates from 1750, was probably due chiefly to this cause. Once begun, the localization of industries tended to become constantly greater and was overcome only by potent economic forces.

The migration of industries.—As the country grew new industries were established in the newer sections ; the center of manufactures, as well as the center of population moved steadily westward. The filling of the Middle West and the growth there of large cities provided the necessary labor supply, markets, and capital, while the development of new sources of supply of raw materials hastened the establishment of industries rivaling those of the older sections of the country.

The very forces which made for localization tended also to shift the industry when these forces showed themselves more strongly in other localities. Thus the manufacture of agricultural implements advanced from New York to Ohio and to Illinois, following the retreating hardwood forests and agricultural interests. In the cotton industry a striking change took place in the rapid advance of the Southern States, especially North and South Carolina and Georgia ; the value of the cotton manufactures of these three States constituted 6.2 per cent of the total in 1880, and 22.6 per cent in 1900. During the same period the capital invested in Southern cotton mills increased from \$21,900,000 to \$125,000,000, the number of spindles from 610,000 to 4,300,000 and the consumption of cotton from 205,000 to 1,500,000 bales. This growth was largely at the expense of the New England mills, and still more of those in Europe, and was due to the proximity of the raw material, the excellent water power, and the supply of cheap labor.

The migration of the leather industry from Massachusetts and New York to Pennsylvania and the Central and Western States, which began about 1880, was due originally



to the exhaustion of the tan-bark supply ; later to an effort to be near the source of supply of leather, namely hides. Slaughtering and meat packing, which had its beginning in Cincinnati about 1818, moved gradually westward, following the opening up of new grazing and fattening regions for cattle and swine.

The industrial development of the South.— A most significant feature of the material development of the United States during the last twenty years of the nineteenth century was the industrial revolution in the South. Although cotton growing was for a generation after 1860 practically the only interest of the South, and remains still the chief one, manufacturing began about 1880 to reach that section. The value of the manufactured products increased from \$338,792,000 in 1880 to \$2,637,017,000 in 1900, and the capital invested in manufactures from \$192,949,000 to \$2,502,490,000 during the same period.

The greatest development naturally took place in cotton manufactures, over half of the cotton factories of the United States being situated there in 1910, and consuming 50 per cent of the raw cotton, practically all of which dated from 1880. The iron industry promised to make even greater strides : in North Carolina, Tennessee, and especially in Alabama, abundant supplies of coal, iron, and limestone lie so near one another that pig iron can be made more cheaply there than anywhere else in America, and probably in the world. The production of Southern pig iron increased from 397,000 tons in 1880 to 2,500,000 tons in 1900 ; and great iron foundries, steel plants, rolling and rail mills sprang up at Birmingham and elsewhere with marvelous rapidity. In 1901 immense deposits of oil were discovered in Texas, furnishing a cheap fuel and illuminant. The splendid forests of hard pine and other timber throughout the South were reached, cut, and sold, and lumber mills were started at various points.

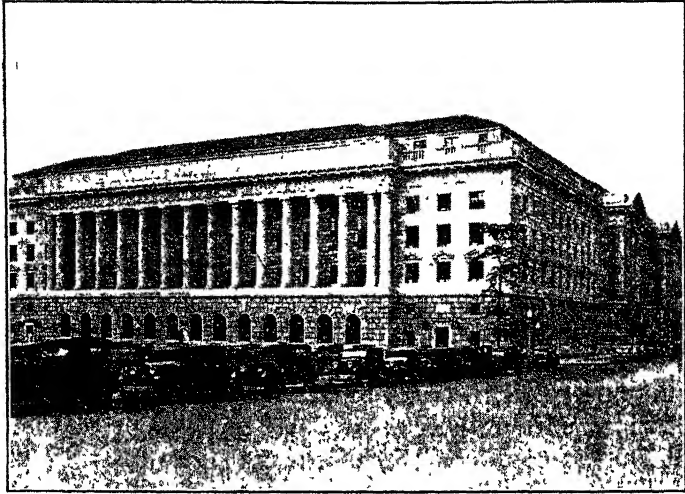
Manufactures in the Southern States had to depend on the labor of the whites ; the Negroes did not show the persis-

tence necessary for factory labor, and the foreigners who migrated to that section preferred to work on farms or to run stores rather than to work in factories. Child labor was largely employed, and the industrial transition brought up economic problems which were burning questions in New England thirty to forty years before, and in old England thirty to forty years earlier still.

The system of interchangeable mechanism.— From the earliest times the American producer has endeavored to supplement the relative scarcity of labor, as compared with the wealth of resources to be exploited, by the introduction of labor-saving machinery. In no branch of mechanical improvements has the genius of the American inventor shown itself more strikingly than in the development of the so-called system of interchangeable parts. The essential principle consists in making each part of a machine precisely like the same part in every other machine. Under such a system it is possible to make even the most intricate and delicate part of a machine in large quantities on the wholesale plan and thus greatly reduce their cost of production. The different parts are then “assembled” at a single operation. On the side of the consumer the great advantage, apart from the lessened cost, lies in the fact that the wide use of complicated and expensive machines is made possible, for in case of injury a broken piece can be replaced with perfect accuracy, by simply ordering a duplicate by number.

This system seems to have been a distinctly American invention, having been first introduced by Eli Whitney in the manufacture of firearms. Its greatest application probably took place in the sewing-machine, but it revolutionized the manufacture also of ammunition, locomotives and railroad machinery, watches, clocks, and agricultural machinery. Not until after the exhibition of some American machinery at the World's Fair in London in 1851 does the system seem to have been generally introduced into Europe.

Standardization.— Equally important was the standardization of machinery and parts. In the manufacture of



UNITED STATES PATENT OFFICE, WASHINGTON

In this building may be seen thousands of models and drawings, representing patented inventions. In 1933 almost 52,000 patents were granted.

screws or iron beams, for example, certain dimensions and sizes, which were best adapted for general use, were selected as standard sizes, and these were then turned out in large quantities by automatic machinery. Odd sizes and special designs could generally be obtained only by special order. In this manner cheapness and rapidity in filling an order were secured, while a broken part could be obtained from any firm making or handling the standard sizes. Such a system was not possible until measuring instruments of exceeding accuracy had been invented, but it now spread rapidly. Its international application was rendered difficult by the existence of two standards of measurement — the metric system on the continent of Europe and of feet and inches in England and America. For the successful invasion of foreign markets by our manufacturers it would be desirable to have the metric system adopted in the United States.

Growth of patents.— One of the unexpected results of the Civil War was the impulse given to the invention and use of machines designed to economize human labor ; from 4363 patents in 1860 — the high-water mark up to that time — the number rapidly grew to 8874 in 1866. In 1869 the number of patents issued reached 12,957, which was not again exceeded until 1881. Writing in 1865, Peto, a keen English observer, made the following comment on this tendency : "Mechanical contrivances of every sort are produced to supply the want of human hands. Thus we find America producing a machine even to peel apples ; another to beat eggs ; a third to clean knives ; a fourth to wring clothes — in fact, human hands have scarcely been engaged in any employment in which some cheap and efficient labor-saving machine does not now to some extent replace them."

The number of patents grew to 39,945 in 1914, which was the largest number ever recorded for a single year up to that time. While not all of these applied to the art of manufacturing, they influenced its growth and called into existence a number of new manufacturing industries. Some of those which date practically since 1880 were as follows : bicycles and tricycles, electrical apparatus and supplies, dynamite and smokeless powder, chemical fire extinguishers, glucose, oleo-margarine, fountain and stylographic pens, phonographs and graphophones, cash registers, rubber goods, typewriters and typewriter supplies. Not only were the mechanical and agricultural industries in many cases revolutionized, but the means of communication, transportation, trade, and even social intercourse were greatly modified or changed. The improvements in the telephone, the invention of the typewriter and the linotype machine, of the cash register and of the recording adding machine, of various medicines and serums, of the steel frame building, electric lighting, the gasoline engine, the automobile, wireless telegraphy, etc., serve to suggest some of the numerous points at which the people's lives were affected by the inventions patented during the last generation.

Many extensive industries were built up on the basis of patents, or old ones were completely revolutionized ; such were the iron and steel, textile, and railway industries, the manufacture of sewing-machines, rubber goods, wood pulp, photography, and stereotyping and electrotyping. While in some of these industries American inventors simply improved upon processes already in use in other countries, most of them were original and new. The American inventor did not merely improve the methods of making old things ; in many instances he produced absolutely new commodities and devised original ways of manufacturing them.

Motive power in manufactures.—The modern factory depends for its motive power no longer upon the unassisted muscular strength of man, but upon the energy derived from steam or water power, which man directs instead of furnishing. Consequently, the growth of manufactures in a country producing standardized goods can be measured better by the amount of power which they utilize than by the number of workmen employed. Tested by this standard the United States made great advances during this period. In this connection, David A. Wells wrote : "When the historian of the future writes the history of the nineteenth century he will doubtless assign to the period embraced by the life of the generation terminating in 1885 a place of importance second to but very few and perhaps to none. . . ; inasmuch as all economists are agreed that within the period named man in general has attained to such a great control over the forces of nature, . . . that he has been able to do far more work in a given time, produce far more product" than was possible at the beginning of the period. The increase in labor force due to the increased use of steam was estimated by Mr. Wells at three hundredfold, and this notwithstanding the relative inefficiency of the existing steam-engine.

The number of horse power grew from 2,346,142 in 1870 to 22,421,000 in 1914. If this power could be expressed in terms of man power it would show an addition to

done by the tireless energy of steam." Previous to the year 1845, when the leather-rolling machine was introduced, this industry had been strictly a hand process ; this invention was followed in the next ten years by the buffing and the splitting machines, and by peg-making and power-pegging machines. The greatest revolution in the industry was, however, effected by the invention of the McKay sewing machine. From that time on improvements in all the processes of manufacture were made rapidly, even the apparently confirmed hand process of lasting being given over to machinery in the early seventies. By 1880 "the subdivision of labor had about reached its limit and the present system had been perfected." As a result of these various improvements the labor cost of 100 pairs of men's boots was reduced from \$408.50 by hand labor in 1859 to \$35.40 by machine in 1895. The yearly product grew from \$80,750,000 in 1860 to \$196,920,481 in 1880, and to \$287,579,258 in 1900.

The war tariff.— Under the stress of the Civil War and the necessity of securing larger revenues, the financial methods of the United States were revolutionized. In addition to the issue of legal tender paper money and an immense increase in our public debt, internal revenue taxes and high import duties were made use of with a vigor rarely, if ever, equaled up to that time. From 1861, when the first additional customs duties were imposed, until 1865, "no session, indeed hardly a month of any session, passed in which some increase of duties on imports was not made." Heavy duties were necessary in order to offset the complicated and burdensome system of internal revenue duties, which taxed domestic industries 8 to 20 per cent. The need of revenue was the leading consideration in the passage of the later acts ; but in all of them the desire for higher protection was present. The most important tariff acts of the war period were those of 1862 and 1864, which granted a degree of protection hitherto unequaled in the history of the country ; under the act of 1864 the average rate on imports was raised to 47 per cent, while the average rate under the tariff of 1857 had

been only 19 per cent. Opposition to high import duties almost disappeared during the war, and these rates were readily acquiesced in. Indeed, Congress spent only five days in all debating the measure, but passed it practically as presented by the Committee on Ways and Means. One of the unexpected legacies of the war was thus a highly protective tariff system, which continued to be raised even after the need of additional revenue had passed away.

Attempts to reduce the tariff.—After the war the decreased demand for revenue led to a gradual reduction of internal revenue taxes ; by 1872 most of these had been abolished, leaving only those on spirits and tobacco as important features of the excise system. At the same time the national debt was being paid off with a rapidity unexampled in history. The tariff, however, remained practically unchanged ; unlike the internal taxes levied in 1812, which were repealed immediately after the war, the high duties of 1864 were retained as a permanent element in our fiscal system. Duties were reduced in 1870 on a few purely revenue articles, such as tea, coffee, wine, sugar, molasses, and spices, but the system of protection was barely disturbed. Since the internal revenue taxes were repealed this was equivalent to the granting of higher protection.

By 1872 a surplus revenue of \$100,000,000 a year was pouring into the Treasury and further reductions became imperative. A "horizontal" 10 per cent reduction was accordingly made in that year in the tariff, but after the panic of 1873, and the resulting deficit in Federal revenues it was easily repealed in 1875, and the previous rates restored. No further changes were made in the tariff until 1883. For twenty years, therefore, the war tariff remained practically unaltered. Manufacturers, who had prospered under the high protection thus granted, proved strong enough to resist any efforts at tariff reform, and the system of protection which thus grew up, largely by reason of the necessities of the Civil War, became a permanent part of our commercial policy.

Tariff changes.— In spite of the reductions in the internal revenue duties, the receipts of the government increased rapidly and by 1881 there was a surplus of \$101,000,000 in the Treasury. A further reduction was made in 1883 in the excise duties by lowering the rate on tobacco by one-half and by abolishing some other unimportant and irritating taxes, such as those on bank deposits and capital, checks, friction matches, patent medicines, perfumery, etc. The effect on the increasing surplus was slight, and the feeling was strong throughout the country that a similar reduction should be made in the tariff duties. A tariff commission, appointed by President Arthur in 1882, recommended "substantial reduction of tariff duties" of from 20 to 25 per cent. Congress, however, in which the protectionist sentiment was strong, refused to sanction such a radical change, and in the tariff act of 1883 made an average reduction of only 5 per cent; the principal reductions took place in those manufactures which were least affected by foreign competition. After several unsuccessful attempts at tariff revision by the Democrats, who had gained control of the House in the elections of 1884, President Cleveland at length sharply defined the issue in his annual message of December, 1887, by demanding the reduction of the tariff and the admission of free raw materials.

The elections of 1888 resulted in a victory for the Republican party, which construed it as an endorsement of their policy of high protection. Accordingly, the McKinley Act of 1890 was passed, greatly increasing the general level of duties, from 38 to 49.5 per cent. The "pauper labor" argument was used with great effect in the debate on this bill, and protectionism was now advocated, not, as Hamilton had argued and as Clay had agreed, as a temporary aid to young industries, but as a permanent policy. The act imposed higher protective duties upon wool, the finer grades of woolen and cotton goods, cutlery and tin plate, etc., and extended them so as to cover a number of agricultural commodities. Sugar was put on the free list, a bounty was

granted on sugar produced in the United States, and reciprocity was provided for. At the same time the accumulating surplus was disposed of by new and extravagant appropriations for pensions and other purposes. This tariff policy was partially reversed by a Democratic Congress, by the passage of the Wilson Act in 1894, which placed wool, copper, and lumber upon the free list, reduced the duties on many protected commodities, and reimposed a revenue duty upon raw sugar. The average level of duties under this act was 39.9 per cent. It also contained a clause providing for an income tax of 2 per cent on all incomes above \$4000, but this section was declared unconstitutional. The victory of the Republicans two years later led to another revision of the tariff by the passage of the Dingley tariff of 1897, which raised the general average of duties to the highest point ever attained, namely, 57 per cent.

For twelve years the Dingley tariff remained undisturbed, but the general dissatisfaction finally grew too strong to be resisted and led to revision by a Republican Congress. The Payne-Aldrich tariff of 1909, however, reduced the duties but slightly, and in some schedules even raised them. There was a slight movement to freer trade in the materials of manufacture and the works of art more than twenty years old were admitted free of duty. A tariff board was also appointed, but lapsed after three years because of lack of Congressional support. Bills to revise the wool and cotton schedules and to admit certain farmers' goods free, which were passed by a Democratic Congress in 1911, were vetoed by President Taft.

Commercial policy and reciprocity.—The keynote of our commercial policy was from the very beginning the reservation of the home market for the domestic manufacturer and the exclusion of foreign competition. Especially after the highly restrictive period of the Civil War did this play an important rôle. Such a policy was necessarily a one-sided one, and its inconvenience was more than once felt as our agricultural and other exports sought foreign markets.

Spasmodic efforts had been made to secure reciprocity treaties with a few foreign nations, but little of permanent value was accomplished before 1889. In that year a Pan-American Congress met in Washington, consisting of delegates from most of the Central and South American countries. Among other things they recommended reciprocity treaties, and the tariff act of 1890 accordingly gave the President authority to establish by treaty commercial relations on a basis of reciprocity. The basis of the policy was that the United States would admit free of duty sugar, molasses, coffee, and hides, if the nations exporting these commodities would receive on an equitable basis our agricultural and other products. It was designed to apply particularly to the Central and South American countries, and treaties were made with several of them ; of European nations, Germany and Austria-Hungary alone made such agreements. The principle of reciprocity was reaffirmed by the Dingley Act of 1897, although it was not put into practice.

SUGGESTIVE TOPICS AND QUESTIONS

1. China is an example of a nation that has made itself almost self-sufficing. Has this been advantageous or the reverse to China?
2. Compare the growth of textile manufactures in the United States and England and give reasons. [T. M. Young, *The American Cotton Industry*; W. J. Ashley, *British Industries*, 68-92.]
3. Why did France lead in 1900 in the production and manufacture of silk? [S. Trotter, *Geography of Commerce*, 265; C. C. Adams, *Commercial Geography*, 101, 238.]
4. Describe fully the Bessemer process of making steel. Was Bessemer the original inventor? [M. D. Swank, *History of Manufacture of Iron in All Ages*, chaps. 45, 46.]
5. Is iron ore transported to the fuel or the reverse? Why? [W. F. Rocheleau, *Geography of Commerce and Industry*, 121.]
6. Name the three largest centers of the iron and steel manufacture during this period in the United States, and tell why each was important. [Trotter, 146; Adams, *Commercial Geography*, 123-125.]
7. What advantages has steel over iron for building purposes? [Swank, 525-540; Adams, *Commercial Geography*, 126.]
8. Describe the sweating system. Is this necessary in the clothing

trade? [W. D. P. Bliss, *Encyclopedia of Social Reform*, arts. Sweating System and Tailoring Trade.]

9. Trace the development of one of the important industries mentioned on page 451. [C. M. Depew, *One Hundred Years of American Commerce*.]

10. Illustrate in greater detail the economies effected by concentration in large establishments. [J. W. Jenks, *The Trust Problem*, chap. 2; H. R. Mussey, *Combination in the Mining Industry*.]

11. Describe some industry which owes its success to patents. [E. W. Bryn, *Progress of Invention*.]

12. Why was not the tariff reduced to the level existing before the war? Were there any serious attempts to do so? [F. W. Taussig, *Tariff History*, 171-193; D. R. Dewey, 396-398.]

13. Is it desirable for the United States to attempt to produce everything that is needed at home? [F. A. Walker, *Political Economy*, 509-511; C. Gide, 323.]

14. Is there a conflict of interests between the wool-growers, the manufacturers, and the importers of woolen goods? Are their interests all met by the tariff? [Taussig, *Tariff History*, 239, 258, 291, 329; E. Stanwood, *American Tariff Controversies in the Nineteenth Century*, II, 380.]

15. Is it a waste of energy to send raw cotton to England for manufacture and then to import the manufactured goods? [J. E. Cairnes, *Leading Principles*; C. F. Bastable, *Theory of International Trade*.]

16. Is there an economic loss involved if New England purchases its fruit from California and sends thither manufactured goods?

17. What were the reciprocity features of the tariff act of 1890? [Act of 1890, sec. 3; J. L. Laughlin and H. P. Willis, *Reciprocity*, chaps. 6, 7; Taussig, *Tariff History*, 278.]

18. What were the provisions of the act of 1897 relating to reciprocity? How did they compare with those of the act of 1890? [Act of 1897, secs. 3, 4; Laughlin and Willis, *Reciprocity*, chap. 9; Taussig, *Tariff History*, 352.]

19. What are the "infant industries" and "pauper labor" arguments in favor of protection? Are they valid today? [Seager, *Introduction*, 372-375; Walker, *Political Economy*, 511.]

20. Suppose the Confederacy had won the War between the States and had established a new nation. In order to protect its industries the South imposes import duties on (1) cotton manufactures, (2) iron and steel, (3) corn, (4) cattle; and the North levies duties on (1) tobacco, (2) sugar, and (3) rice. Would either or both sections have been better off than they are now?

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CHAPTER XXVI

INDUSTRIAL COMBINATIONS

When they first developed industrial combinations sought monopoly power and not infrequently resorted to unfair practices in the pursuit of their aim. The trust problem, as it was first presented, was how to curb these monopolistic enterprises and restore competition. As time went on certain advantages of consolidation and large-scale production were recognized, and the problem became one of regulation rather than suppression.

Tendency towards combination.—We have seen how rapidly the industrial expansion of the United States after the Civil War led to an increase in the size of manufacturing enterprises. The old-fashioned methods of petty producers with small capital were inadequate to develop the wealth of natural resources lying open to the people, and they were steadily supplanted by establishments of growing size and complexity. But not merely did the size of the single establishment grow ; the characteristic feature of the industrial development of the last quarter of the nineteenth century was the combination of hitherto independent businesses into single concerns with centralized management. Industry began to be organized and carried on by the great captains of industry, small independent producers to disappear, and laborers to be marshaled in bodies of a thousand men or more.

Before combination on a large scale could take place several conditions favorable to its growth had to be met. Among these were the standardization of machinery and methods, the creation of adequate accounting systems, the perfecting of the telegraph, telephone, and typewriter, and most important of all, the building and organization of railroads.

Until the construction of adequate transportation facilities, the average business establishments in the United States were essentially local in their nature, supplying a comparatively narrow market and using a small capital. With the rapid extension of the railway system after the Civil War, it became possible to expand operations over a wider territory, to localize and concentrate manufactures, and to use larger masses of capital in a single establishment. With the widening of the market there went on, therefore, an expansion of the business unit, and the modern trust became an economic possibility.

Organization of American industry.—The early rise of corporations with limited liability, about 1840, has already been mentioned. In spite of the early abuses this form of business enterprise soon justified itself, and since that time there has been a steady shifting of capital from private independent management to corporate control. The corporation with limited liability offered special facilities for doubtful ventures in the way of railroad building and similar improvements, and speedily grew in favor. Even industrial enterprises, such as manufacturing concerns, began generally to be organized under this form; indeed, the growth in the number of corporations has been nearly identical with the increase of large-scale production and concentration of production. Omitting the hand trades from consideration, the following table shows that while only a quarter of the industrial establishments in the United States in 1910 were

FORMS OF ORGANIZATION OF MANUFACTURING ESTABLISHMENTS, 1910				
Form	Number of Establishments	Per cent	Value of Product (in millions)	Per cent
Individual manufacturers	140,605	52.4	\$2,042	9.9
Partnerships	54,265	20.2	2,184	10.6
Corporations	69,501	25.9	16,341	79.0
Co-operative societies, etc..	4,120	1.5	104	0.5
Total	268,491	100.0	\$20,672	100.0

corporate in form, they turned out more than three-quarters of the goods manufactured.

Early attempts at combination.— Under the pressure of economic forces the movement towards industrial reorganization began. Various devices had been resorted to for the purpose of restricting competition, of which the earliest and the most common was an agreement between competing producers to fix prices or to limit output, as in the case of the railroads and anthracite coal mines ; a second method was to divide the territory or the profits, as in the case of the salt industry. These agreements were extremely loose and constantly broken by the members under the temptation of higher profits. A stronger form of organization, involving more complete control over the separate establishments, was felt to be necessary, and under the leadership of John D. Rockefeller, the Standard Oil Company, consisting of the earlier company of this name and some of its strongest competitors, was formally organized as a “trust” in 1879. According to this scheme a board of nine trustees was selected to whom the stockholders surrendered their stock, receiving in return trust certificates ; the trustees then operated all the plants in harmony, and divided the profits among the holders of the trust certificates. The success of this new style of combination led to the formation of similar arrangements in the manufacture of whisky, sugar, lead, cottonseed oil, starch, etc.

Hostile legislation and adverse decisions of the courts forced the trusts to change their form about 1890. The trusts were dissolved, but in legal form only, for the combinations continued under other names. Instead of a combination of several distinct companies, the various properties were either united into a single corporation or bound together under a form of organization known as the “holding company.” A holding company is merely a corporation which holds shares of stock in other corporations, but does not itself conduct any business. Several of the States, notably New Jersey, passed laws favorable to corporations

wishing to reorganize under this form for an interstate business. While the technical "trust" was legally destroyed, the name survives as a designation for all large combinations of capital, especially if they are thought to possess monopoly power.

Open price associations.—The vigorous enforcement of the Sherman Anti-trust Act during the decade 1900-10 led to still another style of combination, looser than the pools and trusts which it succeeded. Statistical Associations, so-called, were formed of the members formerly associated in the combination, for the ostensible purpose of exchanging information as to production, orders, and shipments. No agreements were made, but prices were discussed and these usually held until the next meeting. This form of association came to an end about 1907, and when the panic of that year occurred the market became very unsettled and demoralized. At this juncture Mr. E. H. Gary, president of the United States Steel Corporation, instituted what were known as the "Gary dinners." The officers of the Steel Corporation invited representatives of competing corporations to meet for a "full exchange of information as to the condition of the various businesses represented and a frank interchange of views with regard to the business situation." Two ideas underlay these meetings: (1) that a spirit of co-operation should be built up among competitors, and (2) that competitors should be induced to exchange information. Incidentally, prices were stabilized for about two years. As the market became stabilized, price-cutting was renewed and this form of association was discontinued in the iron and steel industry about 1909.

There followed an interesting experiment known as open price associations. The principal elements of this plan were a reporting system, a frank exchange of information, and a spirit of friendliness among competitors. The purpose was to bring together into an open price association all the active competitors in a given business, for these members to exchange information as to production, sales, prices (until July,

1920), and other matters, with each other, and to have frequent meetings. More than one hundred such associations were organized and seem to have prevented excessive competition in the industries where formed. Indeed, their efforts in this respect were so successful that in December, 1921, the practices of one of them were declared by the Supreme Court to be in contravention of the Anti-trust Act, and the movement was checked.

The combination movement.—The early combinations, though important, were few in number. It remained for the closing years of the nineteenth century to witness the wholesale reorganization of manufacturing, transportation, and trading enterprises into industrial combinations.

According to a competent financial authority¹ the following table represents the growth of the "industrial" (manufacturing and commercial) and gas trusts in the United States from 1860 to 1900, not including combinations in banking, shipping, and railroad transportation :

Decade	Number of Organizations	Total Nominal Capital
1860-1869	2	\$13,000,000
1870-1879	4	135,000,000
1880-1889	18	288,000,000
1890-1899	157	3,150,000,000
Total, 40 years . . .	181	\$3,586,000,000

The movement began on a large scale in 1898, and ran at fever heat through the two following years : in the single year 1899 new combinations were reported with a nominal capital of \$3,512,000,000, of which, however, one-quarter represented an inflation of the original capital of the reorganized companies ; in the year 1901 the United States Steel Corporation was organized with a capital of \$1,100,000,000 in addition to a bonded indebtedness of \$304,000,000. Promoters and speculators took advantage of the eagerness of

¹ *The Commercial Year Book*, 1900, Book I, Vol. V, p. 564.

the investing public to purchase industrial securities, and floated many questionable enterprises. More than six billion dollars' worth of securities was marketed by the new industrial trusts before the movement spent itself. By 1903, however, it came to an end, the collapse of the shipbuilding trust revealed some of the evils of fraudulent trust financiering, and the decline of the stocks of most of the new companies disillusioned the investor and brought about a general reaction in public sentiment. Stock watering, that is, the unwarranted increase in the shares issued, usually accompanied the merger of two or more smaller companies; and manipulation of these shares on the stock market frequently took the place of more legitimate activities in productive industry.

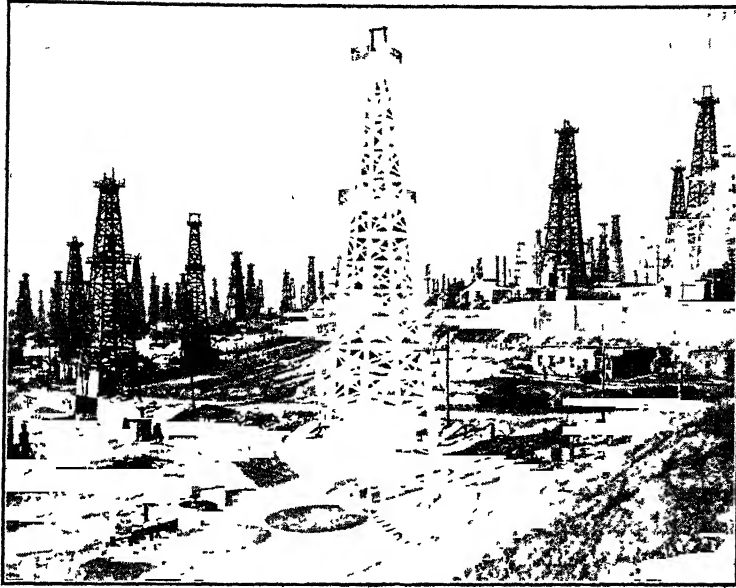
Many exaggerated estimates have been made of the extent of this movement, but the most trustworthy count at the time it was made was probably that of the census of 1900, from which pools and simple expansion of existing businesses have been excluded. One hundred eighty-five industrial combinations were reported, comprising less than one-half of 1 per cent of the establishments in the country, but owning 15 per cent of the capital, employing 8 per cent of the employees, and turning out 14 per cent of the manufactured products in the United States. The greatest combinations had taken place in the iron and steel industry, which alone produced nearly one-third of the gross value of the products of all industrial combinations. The largest combination of all, however — the United States Steel Corporation — was not included in this report. The table on the following page gives a summary of the census statistics of trusts in 1900, arranged by industries.

Extent of the trust movement.— After the publication of this conservative report, other combinations were effected which greatly changed these figures. In 1904 it was estimated that 318 industrial trusts with a capital of \$7,246,000,000 and representing consolidations of nearly 5300 distinct plants existed in the United States; of this capital more

INDUSTRIAL COMBINATIONS						
Industry	No of Comb	No of Plants	Capital	Average No of Wage-Earners	Cost of Materials	Value of Products
Iron and steel	40	447	\$341,779,954	145,609	\$325,630,784	\$508,626,482
Food and kindred products	22	282	247,944,675	33,165	243,315,234	285,941,066
Chemicals and allied products	15	250	176,502,835	28,401	142,572,256	184,914,344
Metals and metal products other than iron and steel	11	89	118,519,401	20,522	131,020,638	180,154,703
Beverages	28	219	118,489,158	7,624	19,117,973	93,432,274
Vehicles for land transportation	6	65	85,965,683	34,422	56,600,518	85,985,533
Locomotives	4	41	16,191,818	17,661	23,809,804	74,063,029
Textiles	8	72	92,468,606	37,723	41,919,311	71,888,202
Leather and its finished products	5	100	62,734,011	9,898	35,463,655	45,684,829
Paper and Printing	7	116	59,271,691	16,706	24,554,364	44,418,417
Clay, glass and stone products	15	180	46,878,928	20,294	6,474,816	23,258,182
Lumber and its manufactures	8	61	24,470,281	10,778	11,028,757	20,378,815
Miscellaneous industries	16	118	45,408,869	17,243	28,158,224	48,605,073
Total	185	2040	\$1,436,625,910	400,046	\$1,089,666,334	\$1,667,350,949

than one-third was controlled by seven great organizations. While these figures are far from trustworthy they at least serve to indicate roughly the extent to which combinations of various sorts have entered into our national industrial life. They controlled more or less successfully the production of tobacco, petroleum, sugar, linseed oil, iron and steel, copper, shipbuilding, beef, starch, flour, cottonseed oil, candy, chewing gum, candles, salt, ice, glucose, crackers, matches, whisky, anthracite coal, fertilizers, tin cans, farming tools, locomotives, writing-paper, school furniture, sewer pipe, glassware, rubber goods, buttons, leather, electrical supplies, etc.

The transportation business was one of the first to be organized in the hands of a few monopolistic companies — on a national scale in the case of the steam railroads, and locally for the street railways. Telegraph, telephone, express, gas, water and electric lighting, and other natural monopolies have long since been brought under centralized control. It is evident, therefore, that combination and organization of immense industries under unified control are



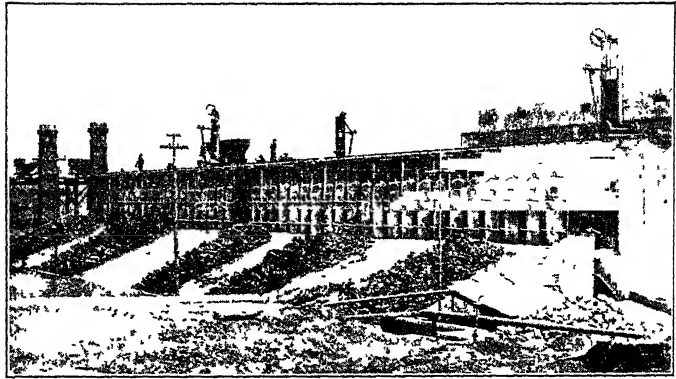
OIL WELLS NEAR LOS ANGELES, CALIFORNIA

facts of our modern industrial life which must be recognized and studied if we are to understand present economic tendencies.

The Standard Oil Trust.— A brief sketch of the development of the Standard Oil Company, the oldest and still the most powerful industrial trust, will bring out some of these points more clearly. For several years after the discovery of petroleum in 1859, the business of producing and refining it was carried on by private individuals under highly competitive conditions. In 1865 a Cleveland firm, which had steadily prospered as a result of good management and improved methods of refining the oil, was organized under the name of the Standard Oil Company, with a capital of \$100,000. It gradually extended its operations, acquired control of rival refineries, sometimes by unfair methods, and established agencies in other States. In 1872, through the South

Improvement Company, it secured rebates from the railways, not merely on its own oil, but on all shipments by its competitors. While this conspiracy was quickly discovered and the South Improvement Company, which was immediately disowned by the Standard Oil, lost its charter, the parent company obtained discriminating rates in its favor soon after and enjoyed them for certainly thirty years thereafter. On this point Commissioner Garfield, of the Bureau of Corporations, in his report of May 2, 1906, on the Standard Oil Company, made the following emphatic statement: "The Standard Oil Company has habitually received from the railroads, and is now receiving, secret rates and other unjust and illegal discriminations."

Improvements were, however, also made in the methods of production, of transporting the oil by means of tank cars and of pipe lines, of storage in huge tanks erected at convenient points, and of refining the oil and utilizing the various by-products. The company soon obtained a practical monopoly in the business of refining oil, and later obtained possession of a portion of the oil-producing regions. By reason of its great economies in production and power of monopolistic control it was able to reduce the price of oil, and at the same time to pay enormous profits to the stockholders. In 1882 it was publicly organized as a trust, but when that form of organization was declared illegal the trust was dissolved and the business was carried on by the corporations which had been parties to the trust, the several corporations operating under the corporation laws of different States. In 1899 the Standard Oil Company of New Jersey increased its capital stock and exchanged the new securities for the stock of Standard Oil companies operating in other States. From 1899 to 1911 the Standard Oil trust operated under the "holding company" form. In 1911, as a result of prosecution by the Federal government under the Sherman Anti-trust Act, the Supreme Court held that the New Jersey Standard Oil Company, the holding corporation, was an illegal combination in restraint of trade and ordered its dis-



BY-PRODUCT COKE OVENS

In the old-fashioned bee-hive coke ovens the valuable by-products released in the process of coking coal were lost. The modern by-product coke ovens permit the saving of the gas, ammonia, acids, coal tar and its derivatives, which in turn form the bases of new industries.

solution. Its shares were distributed among the shareholders of the constituent companies, and accordingly the Standard Oil Company consists today of some thirty-six corporations.

Advantages of combinations.— Many of the advantages claimed for industrial combinations are due as much to large-scale operation as to combination, and may be enjoyed by independent producers not within the combination. The following are the chief economies of production effected : (1) only the best located and most efficiently equipped plants are operated ; (2) obsolete machinery is scrapped and only the best is used, thus applying the latest inventions and utilizing patents ; (3) the best ideas in the combining plants are exchanged, and the efficiency of all raised to the level of the best, as in the sugar and tobacco trusts ; (4) by-products are utilized ; (5) the best managerial talent and organizing ability are obtained ; (6) there is greater division of labor, and better organization.

The peculiar economies effected by the combination lie, however, rather in the savings in marketing, and these may

be summarized as follows : (7) better bargaining power exists in the purchase of raw materials ; (8) there is better command over capital and credit facilities ; (9) the cost of advertising, of traveling salesmen, and of other items which figure largely in a strongly competitive business, may be materially reduced under combination ; (10) saving in cross freights is effected in the case of those trusts which have plants located in various parts of the country, and which can fill orders from the nearest plant ; (11) various other economies in the organization of the business and the sale of the products.

Evils of capitalistic monopolies.— In so far as the industrial combination secures economies of production and marketing which would not otherwise have been effected, it is justified as an efficient mode of organization. Savings of this nature as a result of large-scale methods are, however, not new, but have characterized the manufacturing industries of the United States since the middle of the nineteenth century and have contributed largely to the concentration of business. The aim of industrial combinations is rather to obtain a monopoly position and to control prices. When they have effected economies, they have not lowered the prices of their products to the public in proportion, and in some cases have even raised them.

The most serious indictment against industrial combinations, however, is not that they have raised prices and pocketed monopoly profits, but that they have used unfair methods. Among these may be mentioned the practice of crushing smaller competitors by local price cutting, by the establishment of bogus independent concerns, and by the sale of certain brands at a loss ; refusal to sell to dealers unless these refuse to sell products of competitors ; the receipt of rebates and discriminating favors from the railroads ; and other unfair practices to strangle competition. Even more serious has been the legislative corruption by means of which "big business" has contrived to obtain valuable rights and privileges, immunity from attack, or special favors.

Trust legislation.— Under the common law monopoly was a crime, punishable by fine and imprisonment, and agreements in restraint of trade, carried so far as to be unreasonable, were held to be illegal and unenforceable. There arose a popular demand, however, for more positive legislation against monopoly and combination. In 1887 Congress passed the Interstate Commerce Act, prohibiting pools among railways, and three years later the Sherman Anti-trust Law, which provided that "every contract, combination in the form of a trust or otherwise, or conspiracy in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared illegal." At the same time there began the enactment of anti-trust legislation by the States ; thirty-two States and two Territories in all passed such laws, and in seventeen States anti-trust provisions were inserted in the State constitutions.

These enactments were very severe, but before they could be fairly tested in the courts, they were deprived of all power to control the growing trusts by the lax policy of the three "charter-granting" States, New Jersey, (until 1913) Delaware, and Maine, which not only failed to pass any anti-trust legislation, but greatly relaxed their existing statutes. Ninety-five per cent of the trusts were accordingly incorporated in these States, and as a corporation can be deprived of its charter only for violation of the laws of the State in which it is incorporated, the other States were practically helpless. Defects in the Federal acts were soon discovered also, though these were partially remedied by the Elkins Law of 1903, which facilitated prosecutions under the Interstate Commerce Act, and by the creation of the Federal Bureau of Corporations with power to make "diligent investigation into the organization, conduct, and management" of corporations engaged in interstate commerce (railroads excepted).

Under President Roosevelt, moreover, the Federal government made a vigorous effort to apply existing legislation to the evils of monopoly and combination. Within the

decade 1901 to 1911 eighty-one suits were brought and prosecutions instituted by the Department of Justice under the Sherman Anti-trust Act, which forbade illegal combinations in restraint of trade. In 1904 a stop was put to railroad consolidation by the decision in the Northern Securities case, which declared the combination of parallel lines to be illegal. During the year 1911 cases against the Tobacco and Standard Oil companies were won, and these trusts were dissolved, though apparently without much effect upon the industrial situation.

The purpose of this legislation and of the court decisions based thereon was to destroy monopoly and to restore competition. During the next decade, however, more attention was given to the establishment and maintenance of fair methods of competition. Investigations into the business methods of big business had disclosed many unfair and harmful practices, and against these the later legislation was directed.

SUGGESTIVE TOPICS AND QUESTIONS

1. Does the tendency towards combination indicate an irresistible movement to socialism or to government management of all production? [Chicago Conference on Trusts, 569, A. B. Nettleton, *Trusts or Competition*, 267-273.]

2. Can the large establishment always undersell the small one?

3. Are you personally familiar with any agreement to control prices? What was its effect?

4. "Would it be a good thing for society if a trust made great economies in production, crowded out its smaller competitors, and maintained prices just where they were before, dividing among its shareholders the amounts saved?" — [Fetter.]

5. Do you know of any instances where a trust has unfairly crushed out competition? [J. W. Jenks, 155; H. D. Lloyd, *Wealth against Commonwealth*.]

6. Relate the history of some of the most important industrial combinations, as the Standard Oil, steel, shipbuilding, international marine, copper, etc. [Moody, *Truth about Trusts*; Ida Tarbell, *History of Standard Oil Company*.]

7. In his testimony before the Industrial Commission, Mr. Have-meyer, President of the American Sugar Refining Company, said: "The mother of all trusts is the customs tariff law." In your opinion is this

true? [Jenks, 44-48; Collier, *The Trusts*, 242-259; G. L. Bolen, *Plain Facts*, 112, 121.]

8. Do you know of any trusts built up on legal monopoly (patents)? Would it be desirable to change the patent laws? [Jenks, 220; Ely, *Trusts and Monopoly*, 267.]

9. Should you prefer to engage in business for yourself or accept a position in a trust? In which do you think your chances of success would be greater? [*Chicago Conference on Trusts*, 57; Montague *Trusts of Today*, 90.]

10. Do you know any case where a monopoly has permanently reduced prices? Why? [*Report Industrial Commission*, XIII, 19 (and references to testimony); A. Marshall, *Principles of Economics*, 130, note 1.]

11. Are there any other effects not mentioned in the text which have resulted from trusts? [Jenks, *Trust Problem*, chap. 10; *Report Industrial Commission*, I, 33 (and references to testimony), XIII, 32.]

12. Describe the methods of promoting and financing a modern trust. [Jenks, chap. 5; *Report Industrial Commission*, XIII, 7 (and references to testimony).]

13. What is stock watering and why is it resorted to? [Hadley, *Railroad Transportation*, 54, note; Jenks, chap. 6; *Report Industrial Commission*, I, 12-16 (and references to testimony).]

14. Could harmonious action by all the States be obtained to control trusts? [K. Coman, 330; Jenks, chap. 13.]

15. Why has Congress no power to control business wholly within a State?

16. What is interstate commerce? [Interstate Commerce Act, sec. 1; also in W. L. Snyder, *The Interstate Commerce Act*, 32.]

17. Would the advantages of large-scale production, together with the existence of combination and of monopoly, warrant the government ownership and management of a business?

18. Do you think the government has a right to say how private individuals shall carry on their business, as, for example, in a factory or in the meat-slaughtering industry?

19. Illustrate in greater detail some of the economies effected by concentration in large establishments. [Twelfth Census, X, 723; *Report of Industrial Commission*, I, 68; J. W. Jenks, *The Trust Problem*, chap. 2; H. R. Mussey, *Combination in the Iron Industry*.]

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CHAPTER XXVII

THE EMERGENCE OF THE LABOR PROBLEM

The rapid industrial changes of this period brought sharply to the front the labor problem. Class-consciousness showed itself more definitely, organization was effected, and industrial struggles with employers soon followed. Increasing recognition was given labor in legislation and in other ways.

The effect of the Civil War on the labor problem.— In one aspect the Civil War was the final act in a labor struggle which had dominated the history of the United States for the previous half-century — that of free versus slave labor. With the emancipation of the slaves the labor problem reached a new phase and the emphasis from this time was placed upon the betterment of the condition of the industrial classes. Forces similar to those which had brought about the freedom of the slave were now directed largely to the problem of improving the condition of the wage-workers. The derangement of wages by the excessive issue of legal tender paper money, the growth of manufactures, the introduction of machinery, the competition of wider markets resulting from improved transportation, and the increase of immigration were all combining to produce a new set of conditions and to call for corresponding adjustments. After 1860, accordingly, the labor problem assumed a new prominence.}

During the war thousands of men were drawn from productive industry ; upon the conclusion of peace, 1,000,000 men were under arms on the Union side. The ease with which this labor force was absorbed into the industrial organism, with little of the suffering that marked the disband-

ment of the Napoleonic armies, has always excited the wonder of historians. Chiefly responsible for this was the large amount of free land in the West, to which there was an unprecedented rush. In the South the problem was solved, temporarily at least, by the world's need of cotton. The change from war to peace was not made, however, without some difficulty and discontent, which found partial expression in labor agitation and conflicts.

The growth of population.—The population of the United States grew from 31,000,000 in 1860 to 50,000,000 in 1880, and to 82,000,000 in 1910. In spite of the large increase in absolute numbers there was a falling off in the rate of increase. As the country became more thickly settled, the economic limits of production checked the rapid growth of population. Of more serious import was the fact that the rate of growth of the native-born population declined with the influx of immigrants until it fell below that of the foreign stock. Francis A. Walker, writing in 1880, was of the opinion that in the long run immigration had not increased the population of the United States, but had merely "replaced native by foreign stock." The following table shows some of the more important facts connected with the growth of population during the period 1860-1910 :

THE POPULATION OF THE UNITED STATES, 1860-1910 *						
DATE	White	Negro	Total	Percentage of Growth of Population during Decade ending with Year	Immigration during Decade ending with Year	Percentage of Total in Towns of 8000 Inhabitants or over
1860	26,991,437	4,441,830	31,443,321	35.6	2,598,214	16.1
1870	34,337,292	5,392,192	39,818,449	26.6	2,314,824	20.9
1880	43,402,970	6,580,793	50,155,783	26.0	2,812,191	22.6
1890	55,166,184	7,903,572	63,069,756	24.9	5,246,613	29.2
1900	66,990,788	8,833,994	76,303,387	20.7	3,844,359	33.1
1910	81,736,957	9,827,763	91,972,266	21.0	8,796,308	38.7

* The column labeled "Total" contains a small number of Indians, Japanese, Chinese, and others who are not comprised in either of the two preceding columns. The population for 1870 is that given in the census report of 1910 as the census of 1870 was erroneous on this point.

Immigration legislation.—The industrial problems of this period were greatly influenced by the rapidity and character of the immigration. On the whole this addition to the labor force was welcomed, but certain abuses developed which called for remedial legislation. Immigration declined during the Civil War, but soon after its close was renewed with increased vigor. In 1864 an act had been passed by Congress "to encourage immigration," according to which laborers might be engaged under contract in foreign countries, their wages being pledged in advance to pay for their transportation. This law was repealed after four years, but the business prosperity of the period 1867-72 proved even more potent in attracting immigrants to this country. The need of laborers was considerable in every line of industry; the Western States were establishing immigration bureaus to aid foreigners to come and settle with them; agents of ocean steamship lines began to compete more vigorously for this developing traffic, rates were cheapened, and an immense stimulus was given to the immigration movement. By 1873 the number of aliens coming to our shores in a single year had reached 460,000. The flow was temporarily checked by the crisis of that year and the resulting depression, but in 1882 reached the enormous number of 789,000, a figure not equaled again for twenty years thereafter. The five decades, 1861-1910, saw an addition of 23,014,295 aliens to our population.

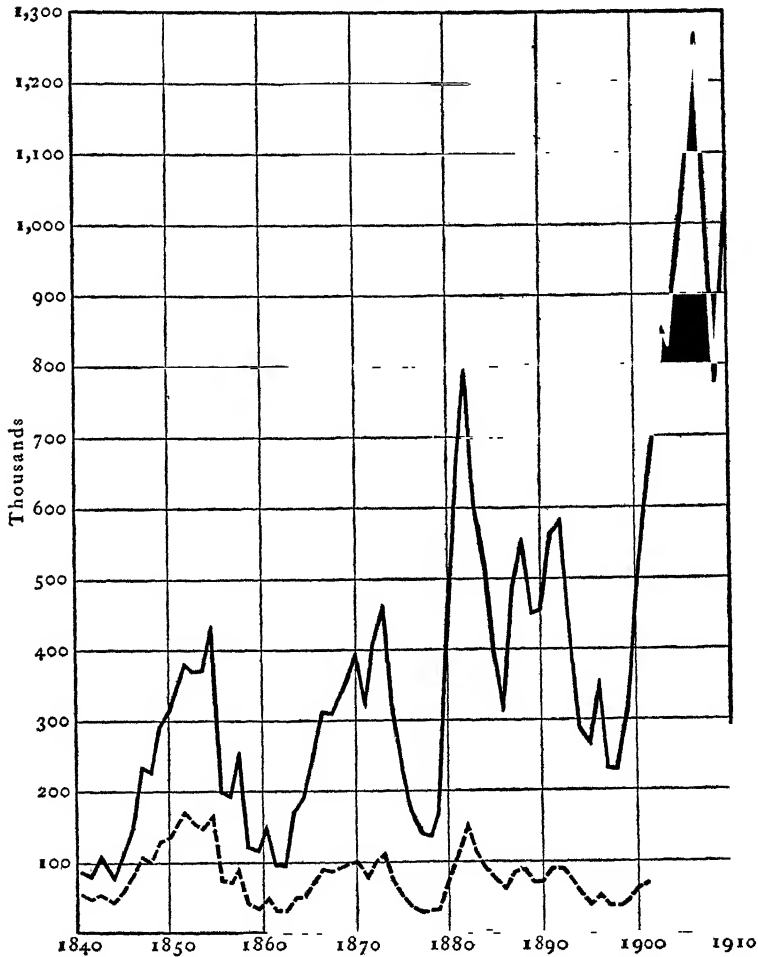
The States of New York, Massachusetts, and California passed laws regulating immigration into their territory, but these were declared unconstitutional in 1876. The first restrictive Federal legislation was an act passed in 1882 limiting Chinese immigration for ten years; two years later the restriction was made absolute. In 1882 also a law was passed forbidding the landing of convicts, idiots, lunatics, and persons likely to become a public charge, and requiring their return at the expense of the ship which brought them here. In 1885 the importation of contract labor was forbidden. The later legislation of 1891 and 1893 did not ma-

terially change these provisions ; an attempt to impose an educational restriction on immigrants was made in 1897 but failed to become law.

Industrial effects of immigration.— Because of the great industrial expansion of the country at this time this large addition to the labor force — for the majority of the immigrants were in the most productive ages — was successfully absorbed. The settlement of the West, which, however, was effected chiefly by native stock, the building of railroads, the development of the iron and steel industries, all called for large supplies of skilled and unskilled labor. Had it not been for the great addition to our population by immigration, the industrial expansion of this period could not have proceeded so rapidly as it did, for the opening up of the West drew off thousands of native Americans and left a gap in the labor supply which must have checked the growing manufactures had it not been filled by the immigrants. The improvements in the iron and steel, boot and shoe, and other industries, and the introduction of automatic machinery, made it possible to draft relatively unskilled labor into the factories.

As a result of the absorption of immigrants to a large extent in industrial establishments there went on at the same time a more than proportionate growth of the population living in cities, which in the course of the nineteenth century increased from about 3 to 33 per cent of the total. The immigrants particularly concentrated in the industrial centers, partly because they found there friends and opportunities for immediate employment, and partly because more of them came from large cities in Europe than was formerly the case.

Up to about 1880 almost nine-tenths of the immigrants were from Germany, Ireland, Great Britain, Canada, Norway, Sweden, and Denmark, and were vigorous, thrifty, quick to learn, and easily assimilated. On the whole, however, they were mostly unskilled laborers and took the lower places in the industrial organism, while the native workers

FOREIGN IMMIGRATION TO THE UNITED STATES,
1840-1910

moved up into higher ones. During the next twenty years the character of immigration greatly changed, large numbers coming from Austria-Hungary, Russia, Poland, and Italy. Less easily amalgamated with the native population, and

bringing with them a lower standard of living, their presence gave rise to new and serious problems.

The majority of the foreign-born were unskilled laborers, and their concentration in a few occupations and in a few industrial centers greatly intensified the evils of competition and gave rise to serious problems, such as the sweating system. Almost two-thirds (62.9 per cent) of the immigrants found employment in 1900 in manufacturing and mechanical pursuits and domestic and personal service, the males in the former and the females in the latter. This concentration aggravated the problem of unemployment and threatened to reduce wages to a lower standard of living in those localities and industries where the pressure was greatest. But in the long run the new infusions were absorbed by the native population. [The labor unions succeeded in enlisting many of the foreign-born laborers in their ranks, and thus prevented the reduction of the wage level to the lower standard. The evil effects of this competition were partially averted by the movement of native labor into higher pursuits which called for greater skill ; while the rough, heavy manual toil was generally left for the recent immigrant.]

The growth of a wage-earning class.—In 1880 a large proportion of the people was still engaged in agricultural pursuits ; as late as 1880 more than 44 per cent of that part of the population engaged in gainful pursuits were employed in farming. Nevertheless, there was a growing class of wage workers enrolled in manufacturing pursuits, comprising 16 per cent of the working population in 1880 and 28 in 1910, of whom it was estimated that at least four-fifths were employed in factories. The distribution of the manufacturing population was, however, very uneven : of the 958,079 persons recorded by the census of 1850 as employed in the manufacturing industries, three-quarters were in the New England States and New York, Pennsylvania and New Jersey. In 1880 the total number was 2,732,595 and in 1910 it was 6,615,046, and the proportion of those engaged in

manufactures ran as high as 51 per cent of the working population in industrial States like Massachusetts.

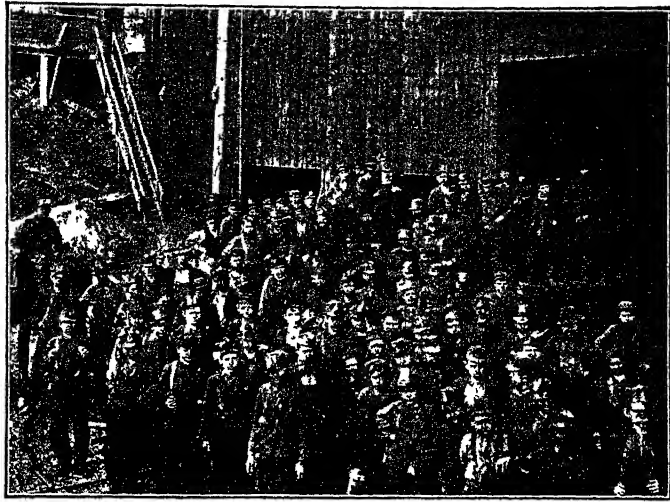
The development of manufactures and the accompanying growth of cities tended to concentrate men in larger masses for social as well as for industrial activities. As the capacity of factories increased larger numbers of operatives were brought together under one roof and management. At the same time the growing displacement of hand labor by machinery and the increased size of the business unit made the worker more dependent upon the owner of capital for his employment, and introduced new lines of social cleavage. In short, the introduction of the factory system had brought with it a set of conditions which are usually summed up under the title of the labor problem. Among these were the employment of women and children, the growth of labor organizations, the spread of conflicts between labor and capital, and the necessity for labor legislation to regulate these and other evils.

Composition of the labor force.—As might be expected in an industrially developed country like the United States, most of the people in the productive age groups were at work. More than 90 per cent of the men between the ages of 16 and 60 in 1880 were engaged in some gainful occupation. The proportion of women between these ages, recorded by the census as wage-earners, was much smaller, since most of them stayed at home as housekeepers, but the number employed in industry steadily increased. The year 1850, when statistics were gathered for the first time, recorded the largest proportion of women in the manufacturing industries, but many of these were household industries. During the next quarter-century the development of industries that required heavy manual labor and physical strength, such as the iron and steel industries, called for men and there was a relative decline in the number of women employed. In the last quarter of the nineteenth century, however, other industries grew up in which women were preferred, and there

was a relative gain of women over men. In several industries where special rapidity or lightness of touch were required the women outnumbered the men, as in the manufacture of cotton-goods, hosiery, hats and caps, gloves, rubber goods, millinery, umbrellas, and similar lines. Almost half of the women at work were employed in domestic and personal service, though the tendency was away from these occupations to factory and office work.

Prior to 1870 no statistics were gathered in the United States of the number of children engaged in gainful occupations ; the census of that year showed that 739,164 children between ten and fifteen years of age were thus employed, of whom 115,000 were in manufacturing establishments. During the next decade the number increased almost 60 per cent, the census of 1880 showing a total of 1,118,356 children in all occupations. The disclosure of such an undesirable development called forth restrictive legislation in most of the States, and during the next decade the number of children engaged in manufactures declined 33 per cent. But the number increased again in the next ten years, even beyond the figures of 1880, largely because of the development of the cotton manufacturing industry in the Southern States, where but little factory legislation existed as yet. In 1910 there were 1,990,225 children between the ages of ten and fifteen at work in the United States, or 18 per cent of all children of those ages ; this was the high-water mark.

Labor legislation.—Prior to 1880 there was very little labor legislation in the United States. So long as the possibility of settling on the public lands existed, the necessity of taking active steps to protect the interests of labor had never been recognized. The government had rather been inclined to give facilities for the accumulation and profitable employment of capital, as the best method for promoting the development of industrial employment and the good of the community. The labor legislation previous to the Civil War was practically confined to the subjects of imprisonment for debt, mechanics' liens, the education of children



BREAKER BOYS AT A COAL MINE IN KINGSTON, PA.

After being mined, the coal is hoisted to the top of a "breaker" and then passes down chutes to the railway cars. On the way down the slate is picked out by breaker boys, and by means of screens the coal is cleaned and sorted into various sizes.

employed in factories, and similar matters. In 1866 Massachusetts¹ took the lead in the direction of greater legislative protection to the working classes by the passage of an eight-hour law for children under fourteen years of age, though this was unfortunately changed to ten hours the following year. A little later (1869) an act was passed providing for the establishment of the first bureau of statistics of labor. Other laws followed, fixing the hours of labor for women and for children under eighteen years of age at sixty per week, and providing for factory inspection and the safeguarding of dangerous machinery. Similar legislation was enacted in other States, directed for the most part to protecting the interests of the weaker members of the industrial body ; but the efficient administration of the laws followed

¹ Ohio had passed a temporary ten-hour law for women and children under eighteen years as early as 1852.

their enactment rather tardily. Of legislation in favor of adult male workers there was practically no sign until toward the very end of the century. The redress of their grievances was left to them to obtain by their own efforts. In this fact lies the keynote of the history of labor during this period, and one of the causes for the organization of labor.

The very qualities which made the American workman such an efficient producer disinclined him to rely upon the government to improve his condition, but led him to trust rather to his own efforts for self-help. Government interference was accordingly not invoked to regulate the freedom of the wage-contract or of employment, which were regarded as constitutional rights ; but legislative protection was extended to the working classes by factory legislation and inspection, and by laws regulating child labor, hours, and conditions of labor. Down to 1900 about half the States passed factory acts regulating the conditions of labor in factories and providing for their enforcement by the appointment of factory inspectors. These laws generally provided for sanitary conditions and sufficient air space ; for the health and safety of the employees against fire, the unhealthfulness of the work, and the danger from machinery ; and for other forms of protection to the life, well-being, and morality of the employees.

Laws limiting the number of hours of labor were passed by the Federal government and some fifteen States for those engaged on public works. Attempts to fix the hours of labor in private industries for adult men were generally held unconstitutional, except for especially unhealthy or dangerous occupations such as bakeries, mines, smelters, etc. On the other hand, the length of the working day for women and children was regulated in about twenty of the States.

Labor organizations.—The individualistic character of American law has frequently led the courts to declare unconstitutional the well-meant endeavors of our legislatures to protect the working classes by statute. The American workman has therefore been forced to depend largely upon his

own efforts for protection and improvement. The growth of labor organizations has proceeded at an equal pace with the industrial development of the country, and has been especially rapid since 1860. The Civil War subordinated the labor struggle to the interests of the larger conflict taking place, but upon its cessation various problems presented themselves for solution. The issue of government paper money, which had greatly depreciated, called for a readjustment of the wage contract, while the absorption into the ranks of peaceful industry of the disbanded soldiers was not carried through without difficulty. The organization of the wage-earners was occasioned immediately by the rise of prices and the cost of living which followed the issue of greenbacks. The table on page 411 shows how sharply prices advanced and how much wages lagged behind during the period 1862-66.

When the war broke out there was practically no organization of labor in the United States ; four national unions had a nominal existence, but the panic of 1857 had nearly eliminated the local unions. The failure of wages to rise with prices, however, led to their organization again on a larger scale. During the later years of the war several of the strongest national unions were formed : the locomotive engineers organized in 1863 and in the following decade and a half their example was followed by the cigar-makers, bricklayers, railroad conductors, iron and steel workers, and granite cutters. This period witnessed a considerable advance in the character and strength of the unions, as well as in the public appreciation of their aims. By 1869 they were sufficiently powerful to obtain the passage of an eight-hour day by Congress for all Federal employees, although it remained for many years practically a dead letter.

The Knights of Labor.—The final step in the organization of labor, that of uniting all union members in the United States in one great association, was also taken during this period. Up to this time the unions had been composed of men in the same trade or occupation, but now the effort was

made to bring all men of any trade whatsoever into the same organization. The first attempt was made in 1866 by the National Labor Union, which had only a brief existence, being completely wrecked in 1872 on the rock of politics. More successful was the organization known later as the Knights of Labor. Organized in 1869 as a secret society by Uriah S. Stevens, a Philadelphia garment cutter, it grew at first but slowly. The mystery which surrounded it, even the name being kept a secret, exposed it to attacks and misrepresentation, so that in 1879 the element of secrecy was abolished.

The objects declared in the preamble were "to bring within the folds of organization every department of productive industry, making knowledge a standpoint (*sic*) for action, and industrial and moral worth, not wealth, the true standard of national greatness." They wished "to secure to the workers the full enjoyment of the wealth they create, sufficient leisure in which to develop their intellectual, moral, and social faculties, all of the benefits, recreation, and pleasures of association." To obtain these they demanded, among other things, the referendum, the establishment of bureaus of labor statistics, co-operation, reserving of public lands for actual settlers, the abrogation of unequal laws, a weekly pay-day, mechanics' lien laws, abolition of the contract system of labor on public works, substitution of arbitration for strikes, prohibition of the employment of children under fourteen years of age, the eight-hour day, etc.

In 1880 this was the most important labor organization in the United States; in 1886, the period of its greatest growth, it claimed a membership of 730,000. In that year it entered upon a series of disastrous strikes; later it came into conflict with trade unions which had not joined its ranks; and finally it became entangled in politics. As it lost in power and numbers its place was taken by the American Federation of Labor.

American Federation of Labor.—This organization was formed in 1881, with a membership of 48,000, by a num-

ber of unions which had become dissatisfied with the rule of the Knights of Labor. The platform adopted did not differ much from that of the Knights, but the basis of organization was essentially different. Whereas the government of the earlier organization was highly centralized and the order itself was composed of district assemblies with little local autonomy, into which workers in any trade were admitted, the Federation of Labor was its opposite on all these points.

It was a "confederation of trade and labor unions," each trade being organized separately, and the unions alone being represented in the national body. Great care was taken not to interfere with the local autonomy of the constituent unions, only matters of general interest coming before the national body. It grew steadily in influence, which was generally conservative, avoided political entanglements, and saw its membership increase to 200,000 in 1890, to 550,000 in 1900, and to 1,762,000 in 1911. The railroad unions stood outside the American Federation of Labor with a membership of 125,000 in 1901. Probably 10 to 15 per cent of the working population was enrolled in labor organizations by the end of the century.

Industrial disturbances.—Although trade unions in the United States have never been formed purely, or even primarily, as strike organizations, this method of enforcing their demands was soon resorted to as they became conscious of their strength. Yet as late as 1874 an American writer could say: "Strikes in this country have not been very serious nor long protracted." Indeed, according to the only available statistics, up to 1867 there were only three years in which more than ten strikes had occurred; after that time, however, only one year showed a smaller number than ten. A number of strikes were inaugurated in 1872 and 1873 by the Grand Eight-hour League, which were unsuccessful except in the case of the building trades of New York City. The crisis of 1873 and the resulting depression caused great industrial disturbances, but on the whole the time was not prolific of strikes. Sooner or later, however, the changes

which had taken place in our industrial organization, the growth of large capitalistic industries and of the factory system, were bound to result in a struggle of organized labor with capital.

The railroad strikes of 1877 were the first important exhibition of the growing power of labor, and directed public attention forcibly to the industrial problems involved. In that year strikes occurred on the Baltimore and Ohio, the Pennsylvania, and other railroads, which by reason of their magnitude and their far-reaching effects have become historic. Reductions had been made in the wages of the employees to offset the decline in business after the crisis of 1873, the tonnage and length of freight trains had been increased, and various other causes for dissatisfaction on the part of the employees had occurred, which finally led to widespread strikes on a number of lines, but especially on the two systems named. Violence was used, property destroyed and armed conflicts took place between troops and strikers, resulting in considerable loss of life. The country awoke to the fact that our growing industrialism had brought with it serious problems as well as increased wealth.

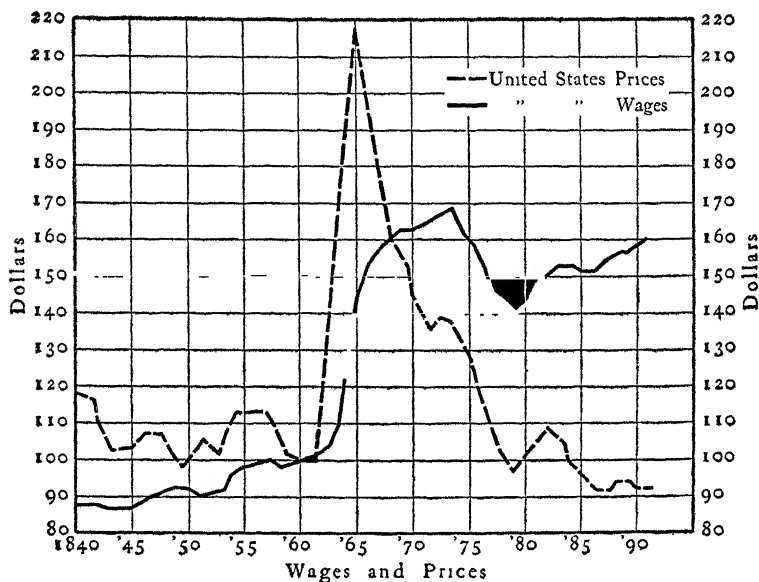
Strikes became prominent in the United States as the system of capitalistic industry developed. The high-water mark was reached in 1886. In that year there were several disastrous strikes, accompanied by violence, destruction of property, and much bad feeling; these were inaugurated chiefly by the Knights of Labor, which lost much of its power after their failure. After that the labor unions were much more conservative in the use of the strike. As they grew in strength their organization improved and they came under the control of more intelligent leaders. In the most strongly organized trades strikes were relatively fewer, but were more likely to be successful than in the weakly organized industries. More than one-third of all the strikes occurred in the building trades, in the coal and coke industry, and in the manufacture of metals and metallic goods. The most prolific cause of strikes was naturally the demand for increase

of wages ; more than 58 per cent involved the question of wages or hours ; if to these be added the sympathetic strike, strikes against the employment of non-union men, and for recognition of the union, two-thirds of all strikes during this period are accounted for.

Employers' associations.—The organization of employers for the purpose of extending their trade, and even of treating with labor, is not a new phenomenon. But this period saw the growth of a new purpose and new methods of organization which mark a distinct era in the labor movement in the United States. Probably the first national association of employers was the National Potters Association, formed in 1875. It was followed by others, until thirty years later there were national organizations in the seven industries of stove and furnace manufacturing, metal foundry work, lake transportation, machine construction, publishing and printing, marble cutting, and ready-made clothing. These associations were counterparts in those industries of the labor organizations with which they could and did conclude contracts regulating wages and conditions for practically the whole country. Furthermore, there has existed since 1895 a national organization of employers, corresponding, though but distantly, to the American Federation of Labor, namely, the National Association of Manufacturers.

While the earlier employers' associations contributed greatly to the maintenance of industrial peace by collective or joint bargaining with the labor unions, they devoted themselves chiefly to the extension of their trades. As the size and the power of the labor unions grew, many employers thought they saw in their demands a menace to business, and some of the later organizations were formed with the explicit purpose of opposing certain union principles. These militant associations formed in 1903 a federated "Citizens' Industrial Association of America," which, however, did not last very long.

Wages.—One of the claims of organized labor is that as a result of their efforts wages have been raised. Whether



this is true or not, it can hardly be disputed that the general tendency of both money and real wages in the United States during the entire history of the country has been upward. Because of the derangement of the currency during and after the Civil War the movement during the period between 1860 and 1880 cannot be altogether satisfactorily described. While the immediate effect of the currency inflation was to depress wages relatively, since the prices of all commodities for which the workingman had to spend his earnings rose so much more rapidly than wages, by 1866 the workingman had regained all he had lost during the war. "The year 1866," says Professor Adams, "ushered in a new epoch, during which, it is no exaggeration to say, the American workingman advanced in a manner unprecedented in this country in which steady progress has been the rule since the establishment of the Union." The crisis of 1873 caused a temporary fall in wages and an increase in unemployment, but by 1880 wages had reached a higher point than ever before.

According to the Aldrich report, which in spite of serious defects of method affords the best data for present purposes of comparison, relative wages averaged according to importance rose from 100 in 1860 to 143 in 1880 ; on the same basis they had been 82.5 in 1840.

The decade 1880-90 was one of great prosperity, except for a short period of depression in 1884, and the course of wages was steadily upward. During the long-continued industrial depression which followed the panic of 1893, wages declined somewhat, and there was considerable unemployment and distress among the working people ; but the year 1898 saw the beginning of another period of prosperity, as a result of which wages reached the highest point attained in the United States up to that time, while unemployment was reduced to a minimum. Continuing the calculations of the Aldrich report, we find that relative money wages rose from 143 in 1880, to 168.2 in 1890, and to 187 in 1903.

Relation of wages to the cost of living.— Statements as to changes in wages are, however, comparatively meaningless unless supplemented by statistics of prices ; by comparing the two we can determine whether or not the condition of the working classes improved. Taking 1860 as the base and calling prices in that year 100, the Aldrich report shows that the relative wholesale prices of 223 articles, averaged according to importance, had risen in 1880 to 103.4 ; in 1840 they were 98.5. By 1890 they had fallen to 85.7, but in 1903 were back to about the 1880 figure. That is to say, while prices had risen 3 per cent in the forty years after 1860, wages had risen 87 per cent. It should be said, however, that rents, which increased considerably, were not included in these figures ; further, that the greatest rise occurred in food-stuffs, which comprise about 45 per cent of the expenditures of an ordinary workingman's family, and lastly that no account was taken of unemployment in these statistics. But even after making allowances for these facts and for errors in the methods of calculating the changes, it is clear that a vast improvement had taken place in the economic condition of

the great body of wage-earners. The artisan in 1914 was able either greatly to improve his standard of living over what it had been in 1860, or, on the same standard, to save almost a third of his wages. It is a matter of common observation that he used his increased earnings for both purposes.

At the same time, the hours of labor were appreciably shortened : in 1860 the average working day was eleven hours ; by 1880 this had been reduced to slightly over ten hours. At the last named date only 26.5 per cent of the recipients of regular wages worked in excess of ten hours per day as compared with 81 per cent in 1830. By 1903 the working day was decreased to 9.6 hours, thus bringing the trade-union ideal of a universal eight-hour day appreciably nearer. The material progress of the people can further be fairly accurately gauged by their consumption of certain semi-luxuries, like tea, coffee, sugar, tobacco, beer, etc., all of which showed a steady increase. Thus in the United States between 1871 and 1901 inclusive, the per capita consumption of coffee increased from 7.91 to 10.45 pounds, that of sugar from 36.2 to 71.9 pounds, that of malt liquors from 6.10 to 15.98 gallons, that of wheat and flour from 4.69 to 5.39 bushels. When to these statistical evidences of well-being are added such things as improved houses, better education, and greater leisure, it is evident that this period marked a considerable advance in the lot of the workingman.

Agricultural labor.— So far we have confined our attention to industrial workers ; if we turn now to the history of agricultural labor we shall not find so bright a picture. While there was advance it was slow, and at no time so great as in the case of urban artisans. Between 1866 and 1879 there was a fall of more than 16 per cent in the money wages ² (with board) of farm laborers ; if, however, we take into account the contemporaneous fall in prices, real wages show a rise of about 18 per cent. Little change had probably taken place in the length of the working day, though

² Reduced to a gold basis.

the introduction of agricultural machinery had undoubtedly done much to lighten the severe strain of farm labor. After that there was a rapid and fairly steady rise in farm wages to 1902 ; this year showed a gain of 32 per cent over 1866.

In the South the labor problem was so different from that in the rest of the country as to necessitate separate discussion. With emancipation the conditions of labor were revolutionized : three million laborers passed suddenly from a state of slavery to one of freedom. The Negroes, judging labor of any kind a badge of slavery, and esteeming idleness the greatest blessing of liberty, deserted the plantations in large numbers and sought their pleasure in the towns. The problem in the South, therefore, was not so much the organization of labor, the reduction of hours and increase in wages, as the more fundamental one of how to secure on any terms the necessary labor supply. Immigration was directed to the South as little after the war as before it, and reliance had therefore to be placed mainly upon the Negroes.

The wage system was first introduced, but was abandoned after a short trial : where the planter furnished rations and promised wages at the end of the year, he often found himself without the means to redeem his promises, while the idea of waiting so long for his pay was distasteful to the Negro. Even worse was the system of weekly or monthly payments, as the Negro usually refused to work again until he had spent all his earnings. The unsatisfactory character of the wage system was evidenced in part by a fall in agricultural wages of more than 25 per cent, between 1867 and 1868.

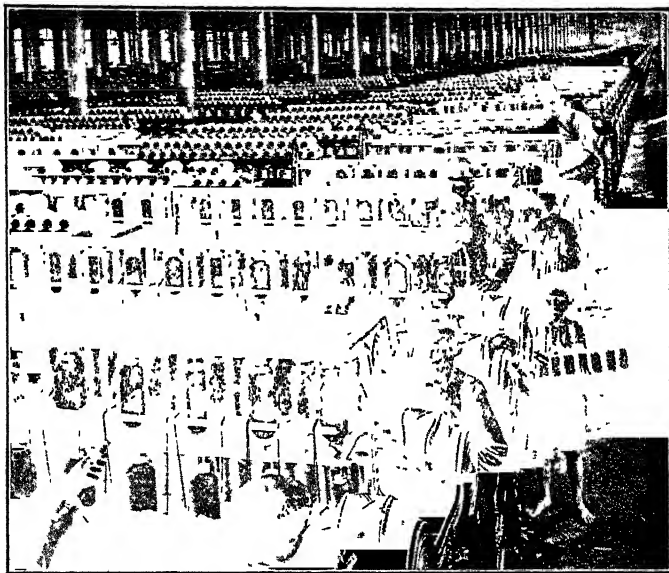
Labor in the South.—After the failure of the wage system, it became evident that the Negro must be given an interest in the crop and be made at least partly responsible for the consequences of his idleness. To secure this result the share system, or “cropping” system, was extended throughout the greater part of the South. According to this plan small tracts of land of from 30 to 80 acres were rented to the Negroes on shares : if the tenant furnished his own tools, seed, and rations—which was seldom the case—he re-

ceived two-thirds of the crop ; if he furnished his own food, but had his capital supplied, he kept half of the crop ; but if he was furnished with everything by the landlord, he was entitled to only one-third of the crop. While this system obtained better results than the preceding wage system in stimulating the interest of the Negro, it led to a more rapid deterioration of the land.

The labor force in the South consisted primarily of Negroes, most of whom worked at agriculture. According to the census of 1890 more than 85 per cent of the male and 96 per cent of the female colored population at work in the country were engaged in agriculture and domestic service. The question of the efficiency of this labor was therefore a vital one for the South. Was the Negro as efficient a worker as the white man under the same conditions ? Was his labor improving ? The mass of testimony on both these points was in the negative, although there was, it must be admitted, great diversity of opinion. As the industries of the South became more diversified, the Negro seemed to lack the energy and the intelligence to occupy the new positions. In agriculture he confined himself almost exclusively to the cultivation of cotton (70.5 per cent of Negro farms raised cotton as the principal source of income in 1900, against 10.9 per cent of similar farms cultivated by whites). Even the special skill that was possessed by many Negro agricultural laborers, who had received their training under slavery, in cotton, tobacco, and rice culture, was lost by the succeeding generation. There was thus a real loss in the industrial efficiency of Negro labor : the skilled laborer became an unskilled one. On this point Mr. Booker T. Washington wrote : ³ "I do not mean to say that all skilled labor has been taken out of the Negroes' hands ; but I do mean to say that in no part of the South is he so strong in the matter of skilled labor as he was twenty years ago."

Vigorous efforts, led by Mr. Washington himself, were

³ *Future of the American Negro.*



CHILDREN AT WORK IN SOUTH CAROLINA COTTON MILLS

In this great spinning room, with more than 100,000 spindles in operation, several young boys may be seen carrying the bobbins upon which the yarn is spun, and helping to tend the machines. One operative can tend two of these machines, which contains a large number of spindles and spins hundreds of threads at once.

made in the South to educate the Negro along lines of industrial efficiency and to make him a more reliable and competent laborer. Encouraging as were the results, it was manifest that any such work of improvement must be slow and laborious. Toward the end of this period there was a considerable influx into the Southern States of immigrants, notably Italians, who supplied an increasing share of the labor needed in the industrial regeneration of that section, and even competed with the Negro in the cotton fields. The native white population supplied most of the labor required by the new cotton factories, steel mills, etc., in which, because of the lack of restrictive factory legislation, many of the abuses attendant upon the early growth of the factory system elsewhere were being reproduced.

Summary : Material expansion.— This period witnessed the conclusion of the westward movement and the appropriation by settlers of practically all the cultivable area of the United States. Stimulated by the government policy of giving away the land and by the rapid extension of railways, land settlement and the production of food-stuffs proceeded at a rate more rapid than was justified by the economic demand for agricultural products. The existence of a large surplus over domestic needs led to the development of a vigorous export trade in grain, and later in meat. In spite of this outlet there was a serious decline in prices, and this in turn led to depression and discontent. In seeking for a remedy the Western farmers were led to favor various schemes for cheap money, such as greenbacks and free silver, and to regard banks with hostility. A demand arose also for government control of the railroads and of other monopolistic enterprises. By the end of the century most of these problems had been satisfactorily adjusted.

In the South a somewhat different set of problems had presented themselves. The economic reconstruction after the Civil War was greatly facilitated by the production of cotton at high prices, but the freeing of the slaves necessitated a complete readjustment of the labor system. This section continued to devote its energies to the production of cotton almost as exclusively as it had done before the Civil War. Towards the end of the period, however, the mineral and the forest wealth began to be exploited and manufactures, especially of cotton and steel and iron, were established.

During this period the exploitation of the natural resources of the country as a whole went on at an unprecedented and ever accelerating rate. On the basis of these raw materials there was built up a diversified system of manufacturing, which, by the end of the century, placed the United States in the first rank in the world in this respect. Hand in hand with this development there went on the building of improved transportation agencies, and the establishment of banking and credit, postal, and other facilities of exchange.

Taken as a whole it was a period of considerable and rapid material advance.

Progress was also being made along other lines. The early part of the period was characterized by rather low political and business standards, but in both these respects notable improvement had been made by the end of the century. The general standard of living was distinctly raised, and better social and industrial conditions made possible by the economic advance. Wages were higher, hours were shorter, and working conditions were on the whole better. Most of the improvement in the lot of the laborer was due to his own efforts, or to those of his organizations, for as yet there was little positive legislation directed to the improvement of his economic condition.

SUGGESTIVE TOPICS AND QUESTIONS

1. What conditions are necessary to the rise of a distinct dependent wage-earning class? [W. J. Ashley, *English Economic History*, part 2, 220, T. S. Adams and H. L. Sumner, *Labor Problems*, 4-14.]
2. What were the chief nationalities of immigrants up to 1880? Their geographical and industrial distribution? [Tenth Census, vols. I, II, Adams and Sumner, *Labor Problems*, 72; P. F. Hall, *Immigration*, chap. 1.]
3. What has been the effect on the home of the employment of women? [E. Levasseur, *The American Workman*, 338; C. D. Wright, in Tenth Census, II, 20 (552); Adams and Sumner, 52.]
4. Were women supplanting men in industry? [Levasseur, 335; Adams and Sumner, 56; W. D. P. Bliss, *Encyclopedia of Social Reform*, art. Women's Work and Wages.]
5. What effect does the employment of women and children have on wages? on the total income of a family? [Adams and Sumner, 55; Levasseur, 336-358; Bliss, *Encyclopedia of Social Reform*, art. Women's Work and Wages.]
6. Can the interests of labor be best promoted by protecting capital or by direct legislation concerning labor? [E. W. C. Taylor, *The Modern Factory System*, 177-227, S. Webb, *The Case for the Factory Acts*, 192-223.]
7. Describe the history of the National Labor Union and the causes of its failure. [K. Coman, 290; R. T. Ely, *Labor Movement*, 69-70, 333-341.]
8. Are strikes usually called in periods of prosperity or depression?

9. Describe the Knights of Labor more fully. [Wright, *Industrial Evolution*, 256-252, T. V. Powderly, *Thirty Years of Labor*, chaps. 4, 5, 6, 13.]

10. Describe more fully the American Federation of Labor. [Wright, *Industrial Evolution*, chap. 20; Levasseur, 203-211.]

11. What was the effect of the railway strikes of 1877 on the cause of labor? [Wright, *Industrial Evolution*, 201-206, 301-306; A. R. Spofford's *American Almanac* for 1878, pp. 105-112.]

12. Describe some of the early attempts at co-operation by the trade unions. Were they successful? [Adams and Sumner, 397-401, 413-419; G. L. Bolen, *Getting a Living*, 67-96.]

13. What was the Aldrich report? What are "index numbers" and the meaning of the figures in the Aldrich report? [Hadley, *Economics*, 193-195; C. B. Spahr, *Distribution of Wealth*, 103.]

14. Definite absolute and relative wages; nominal and real wages. [C. Gide, *Principles of Political Economy*, 492-496; Bullock, *Introduction*, 402, 405.]

15. What effect did the issue of greenbacks have on wages? [W. C. Mitchell, *History of Greenbacks*, chap. 5; Dewey, *Financial History*, 292-294.]

16. Give some specific instances of changes in wages and cost of living with which you are familiar.

17. Was the falling off in cotton production in the South from 1860 to 1870 due more largely to lack of capital or to unwillingness of labor?

18. Describe the Chicago anarchists' riot in 1886, the Homestead strike of 1892, or the Pullman strike in 1894.

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*Part V—Expansion as a World
Power (1914–1938)*

CHAPTER XXVIII

LABOR AND LABOR ORGANIZATIONS

The labor problem has centered primarily around the efforts of the workers to obtain a larger share in the national dividend and also to obtain greater control over the conditions of labor and even of management. With a view to preventing undue competition in the labor market they have obtained restrictions upon immigration; and, in order to protect themselves from the injurious effects of bad working conditions, have sought and obtained favorable legislation.

The United States at the beginning of the twentieth century.—It is not easy to fix upon a date which marks a distinct transition in the economic or political life of a nation, for such changes are never abrupt. The opening of the twentieth century may, however, fairly be said to coincide with the beginning of a new epoch in the life of the American people. The war with Spain in 1898 aroused a new national consciousness and gave us new international interests and relations. This was followed by the development of our export trade and the invasion of foreign markets by American manufacturers.

The various forces thus set in motion received additional impetus with the outbreak of the World War, and other movements were initiated at that time which have had a far-reaching influence on our national life. These were especially marked in the fields of banking and finance, of foreign trade, and of labor, although no aspect of our eco-

conomic development has remained unaffected. These changes coincided with a remarkable expansion of industry and the formation on a hitherto unheard-of scale of industrial combinations, which have reorganized production and led to new methods in both industry and finance. Hardly less momentous has been the growth of great labor organizations, capable of coping with the giant aggregations of capital, and the spread in them of the "new unionism."

In agriculture the end of the nineteenth century seemed to many to mark the end of our heavy exports of grain and other food-stuffs. The practical exhaustion of the supply of cultivable land in our public domain and the growth of the population seemed to make it certain that we should henceforth need all our domestic supplies for home use, and might even become a food-importing nation.

Here again, however, the World War gave a new direction to our development. Agriculture was greatly stimulated by the war demands of European belligerents, new land was brought under cultivation, and when, after the war, European markets were closed to our agricultural exports, there resulted once more the nineteenth century condition of relative over-production of food-stuffs and agricultural raw materials.

Growth of population.—The population of continental United States increased from 91,972,266 in 1910 to 122,735,046 in 1930, a rate of growth slower than for any similar period in the history of the country. This slackening was particularly marked during the period of the World War, when immigration almost ceased and hundreds of thousands of reservists living in the United States returned to their native countries. In spite of the fact that the population has passed the hundred million mark, this country must be regarded as but thinly settled compared with the states of Europe. If the United States were as densely populated as France it would have a population of 570,000,000, while if it had as many people per square mile as Germany, it would have 1,020,000,000.

THE POPULATION OF THE UNITED STATES, 1910-1930						
DATE	White	Colored	Total	Percentage of Increase Decade ending with Year	Immigration during Decade ending with Year	Percentage of Total in Towns of 8000 Inhab- itants or more
1910	81,736,957	9,827,763	91,972,266	21.0	8,796,308	38.7
1920	94,820,915	10,889,705	105,710,620	14.9	5,705,811	43.8
1930	108,864,207	11,891,143	122,775,846	16.1*	4,107,209	49.1

* Owing to the change of the census-taking date from January 1 to April 1 this figure is somewhat distorted. The Census Bureau has recalculated the last two decades on the basis of 120 months each, which gives 15.3 for 1920 and 15.7 for 1930.

The population of the country as a whole has been growing, but different sections have shared rather unequally in these additions. The most striking shift that has come about in the distribution of the population during the past quarter century has been the growth of large cities, which have absorbed the major portion of the immigrants, and whose growth in some States has been accompanied by a decrease in the rural population. More than half (56.2 per cent) of our population now dwell in cities of more than 2500, and nearly 30 per cent in cities of more than 100,000 inhabitants. While the movement from country to city is nation-wide in scope, it has proceeded most rapidly in the industrial States, and has tended to swell the size of the largest commercial and manufacturing centers rather than the small or medium cities. Several causes have been cited to explain the decline in the rural population, such as the abandonment of the farms, the smaller size of families, and the barrenness of rural social life. In view of the actual increase in the number of farms the first explanation cannot be accepted, the second is impossible of proof with existing statistics, and the third is less true with each passing year. The real explanation must be found in the greater productiveness of farm machinery and the setting free of labor formerly needed to raise our food supplies. This labor

naturally gravitates to the cities where it is absorbed by the expanding manufactures. On the whole this must be regarded as an economic gain.

Composition of the population.—Probably no modern nation in the world is composed of such heterogeneous elements as the American. During the century ending in 1930 more than 37,000,000 immigrants came to these shores from every country in Europe and almost every country in the whole world. This movement has made of the United States a “melting pot” of nationalities. In 1930 the composition of the population was as follows :

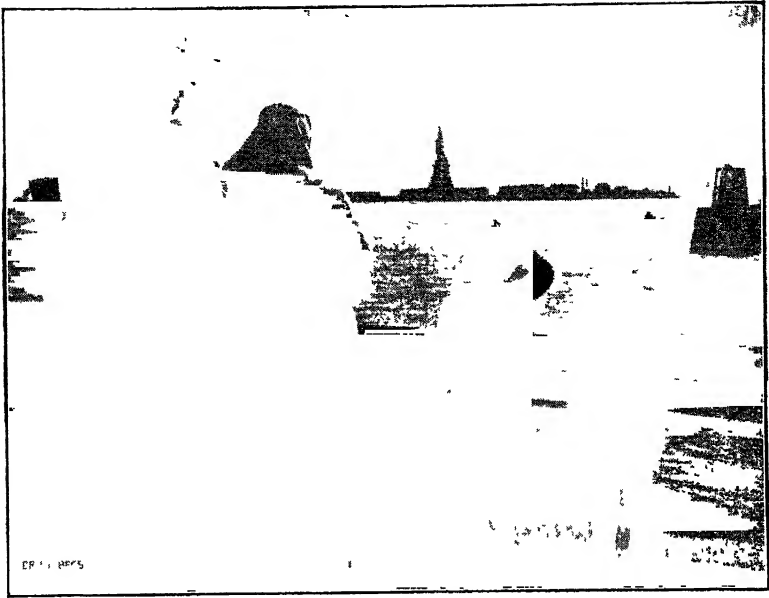
COMPOSITION OF THE POPULATION, 1930		
Group	Total Number	Per cent of Total Population
Native whites with native parents	70,136,614	57 1
Native whites with one or both parents foreign	25,361,186	20.7
Foreign-born whites	13,366,407	10 9
Colored or others	13,910,839	11 3
Total	122,075,046	100 0

The proportion of the foreign-born whites is about 11 per cent but the problem of assimilating the alien elements is not measured merely by the size of this group, for it usually takes more than one generation to fuse them thoroughly into the body of American citizens. If, therefore, to those of foreign birth there be added those persons, one or both of whose parents are of foreign birth and whose home environment has therefore had a considerable foreign flavor, a truer index of the problem of assimilation laid upon the people of the United States will be given. Together, these two groups amount to 31.6 per cent or slightly less than one-third of the whole. The native-born whites with native parents constitute only 57 per cent or somewhat over half.

The seriousness of this problem for the economic, social, and political life of the country cannot be presented in any statistical table. Much depends upon the nationality of the

immigrants. The English and the Irish, the Germans and the Swedes of the previous generation were much more easily assimilated with the native population than are the recent Latin and Slavic elements. The intelligence, age, training, plasticity, and other characteristics of individuals must also be taken into account. Some come with the intention of becoming permanent citizens ; others are simply sojourners and are possibly hostile to our institutions. The "alienage," so to speak, of different groups and of individuals within each group will therefore be very different. The continuance of the strength of the foreign influence which surrounds the immigrant depends largely upon the environment in which he is placed in his new home. Where he settles among members of the same nationality, the foreign language, customs and habits of thought are likely to be perpetuated and the Americanization of the immigrant becomes more difficult. It is this fact more than any other that has created such serious problems in our large cities with their foreign quarters, and in our rapidly growing industrial towns. With the outbreak of the World War the clash of nationalities and the conflict of interests within our own borders became acute and attracted general attention to the situation.

The immigration problem.—The problem presented by this large annual infusion of foreign elements into our body politic and economic has been rendered more difficult as a result of certain well-defined tendencies on the part of the immigrants. There has been a strong concentration on their part in the large cities, and within these in distinct quarters. Here the congestion in crowded tenements, with over-crowding in rooms, leads to a lowering of the standard of living and to the spread of disease and vice. There has also been an equally well-marked concentration in certain industries, such as mining and the iron and steel industry, where a large demand for unskilled labor exists. At the same time the presence of a large supply of low-priced labor with a low standard of living has checked increases in wages,



THE PROMISED LAND

What promise does the land of liberty hold for this immigrant family? The Statue of Liberty stands in the background.

and has exercised a depressing influence upon the higher standards of the American laborer.

The feeling, especially on the part of organized labor, that unchecked immigration constitutes a menace to American institutions and standards of living, has resulted in restrictive legislation. In 1903 the head tax upon admission into this country was raised to \$2 per immigrant ; this was increased to \$4 in 1907, and an Immigration Commission was created for the purpose of making a thorough study of the subject. As a result of their recommendation a law was passed in 1907 to prevent the importation of women and girls for immoral purposes.

Bills imposing a literacy test had been passed by Congress in 1897, 1907, and in 1914, but had each time been vetoed by the President. When a bill containing this provision was

returned to Congress by President Wilson in 1917, it was passed over his veto. This law also raised the head tax to \$8 and provided for more effective enforcement of the previous legislation. Finally in 1921 for the first time an absolute limitation on immigration was imposed : the so-called "quota" law. This limited the number of immigrants of any nationality admitted in any year to 3 per cent of the number of such nationality resident in the United States in 1910. The reasons which led to this legislation seem to have been (1) the fear of a flood of emigration to this country as a result of the efforts of European citizens to escape the heavy taxes and hard living conditions in their homes which have resulted from the war ; (2) the fear on the part of organized labor that the standard of wages would thereby be lowered, especially in view of the widespread unemployment in the United States at the time; and (3) the presence here, as disclosed by the World War, of some 10,000,000 unnaturalized aliens, whose Americanization is necessary before further additions are permitted.

This "national origins" act was amended in 1924 by making 1890 the base year and reducing the quota to two per cent ; this was intended to favor the immigration from Great Britain and northern Europe and to lessen the proportion of south Europeans. The immigration of Japanese was prohibited. The law was slightly modified in 1927 by making the population of 1920 the base. Our neighbors in Canada and Mexico were exempted from the restrictions of these provisions. That the legislation was effective is shown by the decline in immigration ; for the fiscal year 1936 it was only 36,329. The original idealism of our immigration policy, which asserted that "America has room about her hearth for all mankind," has evidently been abandoned in favor of a policy of nationalism.

The efficiency of labor.—The growth of large-scale production, the concentration of industry, and the immigration of large numbers of unskilled, capital-less laborers have all tended to produce a wage-earning class, and have caused the

status of the American laborer to approach more nearly that of his European cousin. And yet foreign observers are agreed in attributing to American labor certain special characteristics : according to the commissioners of the British Iron Trade Association, "the American workman is generally very nimble minded, versatile, alert, and intelligent, quick to pick up new ideas, and equally ready to apply them." Professor Levasseur was struck by their energy, ambition, and resourcefulness, and especially by the pains which they take to economize labor. From early colonial days labor has always been relatively scarce and high-priced, and, wherever possible, machinery has been introduced to supplement human muscle and brain. As a result, the productivity of the American worker, combined with machinery and natural resources, is greater than that of any other laborer in the world, and has made possible the enormous production described in the preceding chapters. On the other hand, accusations are often brought against the high pressure at which the American laborer is compelled to work by steam-driven machinery, the intensity and monotony of his toil, and the narrowing of the field for responsible labor. There is, however, less danger from monotony of work than from monotony of life ; the latter rather than the former is the cause of discontent and unrest.

The mobility of labor.—A marked characteristic of American labor, and indeed of the people as a whole, is its mobility or readiness to move from place to place. A certain fluidity has always been given to the distribution of the population by the settlement of immigrants in localities where wages were highest, that is to say where the demand for their services was greatest ; but this mobility is even more characteristic of the native-born population. The early settlement of the Mississippi Valley and the Far West was one exhibition of this movement ; the more recent increase of the city population at the expense of the rural districts is another. As late as 1910 there were ten States west of the Mississippi in which a majority of the population were na-

tives of other States. Even in so old a State as Illinois, which was admitted to the Union in 1818, this movement of the population is striking: in 1910 one-third of the native-born Americans in Illinois had been born in other States, and at the same time over one-fourth of those born in that State were then living in other States of the Union. For the United States as a whole 21.7 per cent of the native-born lived outside of the State of their birth in 1910.

The facts just cited leave no doubt as to the mobility of the population of the United States. The people slip easily over State and county lines, whether moving in or out. How can this great restlessness of the American people be explained? The principal cause of the westward migration of the people has undoubtedly been the existence of cheaper land in the newly developing sections, but this is no longer important. Another factor, closely connected with this, is the unwillingness of the farmers to change their methods of agriculture to conform with new conditions in their old homes; bred to primitive conditions, with consequent careless tillage and a one-crop system, they have found it easier to move themselves and families to another State where they can continue the same practices than to change their methods.

These explanations apply only to the agricultural population; the movement of the industrial laborers must be accounted for on other grounds. Here the cause is to be found in the better industrial opportunities which the large city offers, the development of new industries, the opening up of new mines or other sources of raw materials, and the building up of new markets. Improvements in transportation facilitate the easy movement of the population and increase its mobility. An important effect of labor mobility is the breaking down of any special bargaining power which workers in one section of the country may have, and the leveling of wages to uniform rates. }

The World War and labor.—The World War had a profound effect upon the labor movement. Organized

labor in the United States, with a few exceptions, supported loyally the war policies of the government. On the other hand, the government freely recognized the principle of collective bargaining, and established the National War Labor Board as an agency for settling disputes between employers and employees. The position of labor was greatly strengthened during the war by reason of the reduction of immigration to a minimum, and of the return of thousands of alien reservists to their native homes. After the entry of the United States into the war additional thousands of workers were drafted into military service. There was thus a relative scarcity of labor and wages rose as a consequence. Labor leaders were appointed on most of the war boards organized by the government, and the right of organized labor to participate in the political and industrial affairs of the nation seemed to be recognized by the administration. In return, restrictions on output were reduced by the workers, and the increased production of coal, shipbuilding, rivet driving, and similar lines showed encouraging possibilities.

After the armistice organized labor became more restive and seemed not unwilling to put their newly won power to the test. Several conditions contributed to this end. Radical leaders had come to the front in several unions, who were dissatisfied with the conservative policies of the American Federation of Labor and wished to use extreme measures to enforce their rights. Wages in many lines had not risen so rapidly as the cost of living, and this had caused dissatisfaction. A long series of strikes occurred in 1919, involving a total of 4,000,000 men, culminating in the steel and the coal strikes, and leading in the latter case to intervention on the part of the government. Both of these strikes were lost, but the next year, in spite of these failures, about 1,500,000 men struck in other trades, and 1,000,000 more in 1921. In 1922 the railroad unions, fearing the loss of their high wages when the railways were returned to private ownership, conducted an "outlaw" strike. This was soon ended, but the year saw 1,600,000 men out on strike. The return

of good times, however, lessened the grievances of the workers, and inclined the employers to make concessions in order to avoid conflicts with labor.

The new capitalism.—During the eight years of prosperity beginning with 1922, labor was able to regain some of the advantages of the war period, and discontent lessened. The employers, moreover, anxious to maintain friendly relations with labor during good times and to avoid expensive strikes, commenced what was called the “new capitalism.” This took various forms. Welfare work was one. This was not new, but now it was greatly extended, and hospitals, club houses, athletic fields, cafeterias with meals at cost or nearly so, improved bathing and sanitary conveniences, and other facilities were provided by employers as a method of placating labor and avoiding industrial conflict.

An endeavor was also made to establish an identity of interest between capital and labor by inducing the workers to purchase stock in the corporations by which they were employed. In 1927 it was estimated that more than 800,000 employees had purchased, or contracted to purchase, shares of stock which in the inflated prices of the time were valued at \$1,000,000,000. The panic of 1929 unfortunately brought this experiment to an end and inflicted serious losses on the workers.

Another experiment was the establishment of labor banks, the first of which was opened in 1920 by the Brotherhood of Locomotive Engineers. It was hoped, by this means, to employ the savings of wage-earners, estimated at about \$6,000,000,000 annually, for co-operative enterprises and other labor ventures. By 1927 thirty-eight such banks had been established, with deposits of more than \$100,000,000. Poor management and unwise investments had wrecked about twenty of these banks by 1929, and the panic of that year carried most of the remainder into insolvency. Evidently labor had not yet demonstrated its ability to finance and manage capitalistic enterprises.

The period of 1922-29 was on the whole one of friendly

relations between labor and capital. The radicalism and combativeness of 1920 had become co-operative and even pro-capitalistic by 1928. With the improvement of economic conditions labor leadership became more conservative, especially on the part of the American Federation of Labor under its presidents Samuel Gompers and, since 1924, William Green. The latter proclaimed the alliance of labor and capital in 1927 by announcing that the "best interests of wage-earners, as well as the whole social group, are served by increasing production, in quality as well as in quantity." And yet, even as he uttered these words, changes were taking place in industry which called for new adjustments in the relations between labor and capital and which threatened the security of the wage-earner.

Effects of the mechanization of industry.— Perhaps the most striking fact in modern industry is the increasing use of power-driven machinery. Not a branch of economic activity but what is affected by this movement. The mechanization of agriculture is described in another chapter, to which reference may be made¹; here a few instances in mining, transportation, and manufactures will show the far-reaching effects of the introduction of machinery :

The bulk of the domestic iron ore used in the United States is not touched by the hand of man from the time it leaves the mine until it is converted into forms for sale, as rails, iron rods, etc.; the ore is dug by power shovels, and "milled" through chutes, so that even in mining but little hand labor is necessary. . . . In crushing, stocking, or loading, man directs the movement of machinery and touches but little of the ore.²

Improvements in railroad transportation have increased the size of the freight cars, lengthened the train, and at the same time reduced the size of the train crew. "In 1928 the Boston and Maine Railroad Company completed a freight yard at Somerville, Massachusetts, with an area of 470 acres and 228 miles of track, which could be operated by

¹ See Chap. XXX.

² A. O. Backert, *The ABC of Iron and Coal* (New York, 1921), I.

one man without switchmen. It cost \$4,000,000 and employed thousands of electromagnets.”³

Most of the mechanization has taken place, as might be expected, in manufacturing, of which a few illustrations follow. With the aid of machinery one man can do work at open hearth steel furnaces that formerly required the labor of 42. One operator can now care for more cotton looms than 50 could manage in our grandfathers' time. A bottle-making machine now does the work of 54 men, and a window glass machine the work of 20. Two men, with the aid of a conveyor, now unload as much coal as 50 unloaded formerly ; and 2 operators, with a cigar-making machine, turn out as many cigars as 15 can make by hand.

The effects upon labor of the mechanization of industry are not easy to trace, for they are manifold and often contradictory. The old manual skills of the handicraft worker or artisan have been largely replaced by machinery, and the former apprenticeship system of training labor has been rendered all but extinct in the field of manufactures. As the subdivision of processes has reduced work to simple repetitive operations, machines have been introduced to perform these operations and unskilled labor has been displaced. On the other hand, some of the skilled trades, as the machine-making and mechanical industries, have become increasingly important. These changes have lessened the value of manual skill and have laid growing emphasis upon the importance of general intelligence, adaptability and responsibility.

Unemployment.—Improvements in factory organization and marketing, and especially the displacement of labor by the increasing use of machinery, caused a corresponding growth in the volume of unemployment. Between 1920 and 1927 the average minimum number of unemployed ranged from 1,400,000 to 4,270,000, but was never less than the former figure. This was a new phenomenon in our economic history—to have an increasing volume of

³ F. A. Shannon, *Economic History of the People of the United States* (New York, 1924), 750.

unemployment during an era of expansion — and a new name was invented for it, that of “technological” unemployment. When to the displaced industrial wage-earners are added the agricultural workers who were set free from the farms by the use of agricultural machinery, it will be seen that a problem of national proportions had arisen. The easy-going philosophy which asserted that these men would be absorbed by the creation of new jobs no longer availed. The increasing productivity of the machine age was faced by a diminishing purchasing power on the part of labor. The unevenness of economic changes and their increasing frequency made normal adjustments difficult and threw upon labor an undue burden. Economic progress exacts a human cost in unemployment, but it is still a question as to how this cost shall be distributed among the various social groups.

Even in prosperous years and under efficient management a certain amount of unemployment is inevitable. Temporary or local maladjustments between the demand for and supply of labor prevent a perfect equilibrium. It is estimated that in the United States about 1,500,000 wage-earners are chronically unemployed. After the panic of 1929, the number grew most alarmingly, reaching its peak in the winter of 1932-33 when about 12,000,000 persons were reliably reported to be out of work. This was the major problem that confronted the administration of President Roosevelt.

The last two decades have witnessed remarkable technological improvements, comparable in their magnitude and far-reaching consequences, with the Industrial Revolution of one hundred fifty years ago in England. As a result of the rapid introduction of machinery and improved methods of organization and marketing, men have been displaced faster than they could be re-absorbed by industry. While it may be argued that in the long run these improvements are advantageous to society as a whole, such an argument makes little appeal to the man who has lost his job through the introduction of an improved machine. Human progress

always exacts a price in the form of dislocations and new adjustments, but in many cases the burden falls with undue severity upon the worker.

Labor legislation.— It has come to be recognized that labor is not a mere commodity to be bought and sold on the market like other commodities, and consequently that the wage contract differs from ordinary price contracts in several respects. The latter are between property owners and for the most part they are concerned with insensate things. The former is a bargain which involves not only wages, but also conditions of work, hours, speed, safety, with possibilities of fatigue, accident, disease, and even death. Since these are matters which affect the well-being of society itself the State asserts the right to legislate regarding them. Professor Commons has expressed the belief that the latest stage in the development of public opinion and judicial decisions on this subject dates from 1898, and may be called the “public benefit” period of labor legislation. The health of the producer is now held by the courts to be a public benefit and laws passed to protect him are approved. This protective legislation is sustained by the exercise of that elastic power of the State known as the “police power,” which enables the State to limit or even to destroy private rights of property and contract in the interest of the public welfare. Labor legislation accordingly covers almost every phase of the labor contract.

The settlement of industrial disputes is provided for by legislation in two-thirds of the States, in Alaska, and also by Federal legislation. Many of the States have permanent boards of conciliation and arbitration, and in most of these compulsory investigation is authorized. The Federal act applied only to common carriers, but within that field has been successful in averting strikes. The best results of both State and Federal intervention have been achieved through mediation ; compulsory arbitration has not been adopted in this country.

The eight-hour day has long been a trade union ideal,

and after 1914 it was generally realized in practice. Congress provided once more in 1912 for an eight-hour day in government plants and this time extended it to cover all Federal work done under private contract. From 1916 on the eight-hour day was legal full time on the railroads. After 1914 the average factory week ran from 48 to 50 hours a week, about the same in mines, and a little less in the building trades.

Legislation limiting the length of the working day in private establishments in the field of manufacturing has thus far been confined almost entirely to women and children. Only Montana and West Virginia do not regulate the hours of work for children, and only seven States have failed to place restrictions on the hours for women. The constitutionality of such legislation was upheld in an Oregon case in 1917, and has not since been successfully challenged. Restriction of hours for men has been effected through collective bargaining rather than by legal enactment. The Federal government and about half the States have eight-hour laws for employees on public works ; more than half the States limit the hours of work on steam and electric railways, and more than a dozen States have eight-hour laws for the protection of workers in mines and smelters. In only three States, however, has the length of the working day for men in manufacturing industries been fixed by legislation.

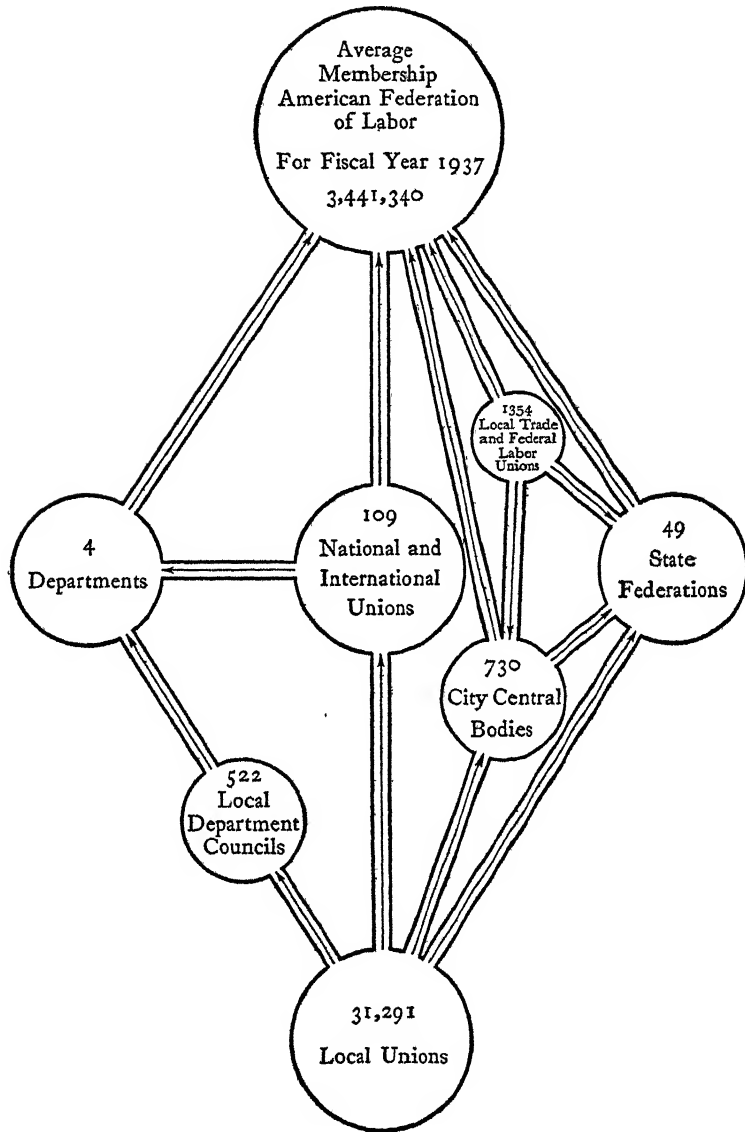
About half the States provide public employment offices where an effort is made to find work for the unemployed ; and in the majority of the States legislation has been passed restricting the abuses of private employment agencies. Most of this dates from 1900. Legislation for the control of industrial accidents and occupational diseases is becoming more general as their evils and avoidable character are better understood. The usual method of dealing with these questions is that of regulation of the conditions of employment ; the complete suppression of the industry or exclusion of persons, except children, and sometimes women, is unusual. Minimum wage legislation is of recent growth, dat-

ing from 1912, when Massachusetts passed the first law on this subject. Since then about a dozen other States have followed the example of Massachusetts and enacted similar legislation. The purpose is to raise excessively low wages to a reasonable level.

The most important recent development in labor legislation has been in the field of social insurance. The Federal government has enacted a compensation law for its own employees, and forty-six States have also since 1911 passed workmen's compensation laws. According to these acts workmen are compensated for injuries suffered in the course of their employment ; in many of the laws occupational diseases are included as well as accidents.

Labor organization.—The individualistic philosophy of American workers has led them to depend upon their own efforts for the shortening of hours and the raising of wages, rather than to rely upon the slower processes of legislation. To enforce these demands it has been necessary for them to combine into trade unions. The past twenty years have witnessed important developments in the field of labor organizations. The older trade union was made up of members who pursued the same craft, and whose aims were similar ; in the pursuit of these they emphasized practical ends which would immediately benefit the members of the union. This type of self-sufficient or separate trade union has steadily lost its power and importance as machine methods have destroyed the value of special skill or the need of training for a particular craft. Recently, therefore, a new type of organization, comparable with the integration of various industries into one great company, has developed in the field of labor ; this is industrial unionism or the amalgamation of various workers in an industry into one organization. This is being urged by miners, printers, smelters, the textile, millinery, gas field, and garment workers, all workers in mass-production industries, but thus far has been opposed by the craft unions in the American Federation of Labor.

The American Federation of Labor still retains its pre-



eminent position as the federation of unions. The membership of its affiliated unions has grown from 550,000 in 1900 to 1,762,000 in 1911, and 4,078,740 in 1920. The depression of 1920 and the unsuccessful strikes of 1921 and 1922 caused a rapid falling off in union membership, the lowest point being reached in 1924. In that year the American Federation of Labor numbered about 2,800,000, with a total for all unions of 3,600,000. The upswing in economic conditions and the less hostile attitude of employers brought about a comparatively rapid growth until the end of 1929, when the Federation claimed 3,460,000 members, while other unions brought the total to about 4,500,000.

Until recently these unions were organized from skilled members of a particular craft or trade, rather than from the industry as a whole ; the unskilled workers were largely overlooked. The American Federation of Labor was merely a loose grouping of practically self-governing national unions, which were largely independent of each other. The members of one affiliated union might strike and those of another might continue at work in the same plant. The newer type of organization is the union under one control of all workers of various trades within the same industry. An amalgamation of allied crafts is already taking place even within the American Federation of Labor and may broaden into complete industrial unionism.

Whatever merit the idea may have in an age of machine methods, the name fell into bad repute because of its association with the Industrial Workers of the World. This organization was an industrial union filled with radical ideals. It advocated a revolution against the present capitalistic organization of society, which it hoped to destroy by "direct action," that is by using the general mass strike in the destruction of the capitalistic system. Organized in 1905, the I. W. W. spread so rapidly that it awakened alarm, which was accentuated by its use of force. But with the entry of the United States into the World War the influence and strength of this radical movement waned.

After the depression and the failure of the craft unions adequately to safeguard the interests of the least skilled workers, the idea of industrial unionism, that is the organization of all workers in an industry in one union instead of their organization by crafts, was taken up with renewed vigor under the leadership of John L. Lewis. A Committee on Industrial Organization (C.I.O.) was formed, which proceeded to organize the workers and demanded the right to make collective contracts with each industry as a whole. The new movement was fought both by the more conservative American Federation of Labor and by employers, and the years 1936 and 1937 were marked by bitter struggles within the ranks of labor and between the C.I.O. and the larger industries which had until then been able to maintain the policy of an open shop. It is too early to predict the outcome, but the tendency toward industrial unionism in an age of large-scale mechanized industry appears too strong to be wholly resisted.

The emergency of 1933 and the National Industrial Recovery Act.—At the beginning of 1933 there was a serious and pressing emergency. Some 12,000,000 workers were unemployed, and the number was growing. Purchasing power had fallen off, industry was prostrate, and discontent was general. As private industries were unable to expand their operations and give work to the unemployed, it seemed necessary for the national government to assume the task. Accordingly an emergency measure known as the National Industrial Recovery Act (NIRA) was passed on June 16, 1933. The purpose was set forth by President Roosevelt in a message to Congress urging the passage of the bill :

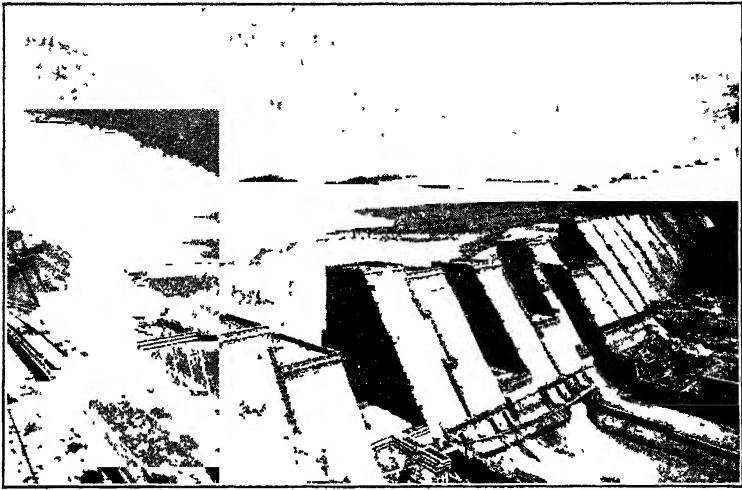
My first request is that Congress provide the machinery necessary for a great co-operative movement throughout all industry in order to obtain wider re-employment, to shorten the work week, to pay a decent wage for the shorter week, and to prevent unfair competition and disastrous overproduction.

As later translated into action, this declaration of purpose

meant that the act proposed (1) to create more jobs ; (2) to raise wages, shorten hours, and improve working conditions ; and (3) to encourage collective bargaining.

The immediate and temporary part of the Recovery Act was to provide relief for the unemployed, and for this purpose a public works program was set up. An appropriation of \$3,300,000,000 was made by Congress, to which another \$400,000,000 was added in June, 1934. Not only was the Federal government to give employment directly, but it was empowered also to make grants to States and municipalities up to 30 per cent of the cost of labor and materials. Acting under this authority, the government set up a Public Works Administration (PWA) with Secretary of the Interior H. L. Ickes as chief administrator. Among the Federal projects were the Tennessee Valley development, river and harbor improvements, construction of public buildings and warships, and other public-benefit enterprises. In order to give immediate employment a Civil Works Administration (CWA), under the direction of Federal Relief Administrator H. L. Hopkins, was organized, which planned to take 4,000,000 persons off the relief rolls by providing work in the nature of short-time local improvements. Another organization to give temporary employment was the Civilian Conservation Corps (CCC), which enrolled some 400,000 young men for work in camps for reforestation and other work in the national and State parks and forest preserves. By July 1934, more than 3,000,000 jobs had been created under these various agencies.

The public works program was a purely temporary expedient to care for the unemployed until private industry should revive sufficiently to reabsorb them in more permanent positions. From the standpoint of labor the other labor provisions of the act were held to be of more significance. The most important of these was the section 7(a) relating to collective bargaining. This provided that employees should have the right to organize and bargain collectively through representatives of their own choosing without inter-



NORRIS DAM, A TVA PROJECT

A view of the downstream face of Norris Dam, taken from the west abutment. The normal level of the reservoir is well defined by the line of trees in the background.

ference ; that they should not be forced to join a company union ; and that employers must comply with provisions of the industrial codes in relation to hours, wages, and other conditions of employment. Before the value of these benefits to labor could be thoroughly tested they were swept away by a decision of the Supreme Court on May 27, 1935, which declared this part of the act unconstitutional.

An effort was made by Congress to salvage that part of the NIRA which related to collective bargaining, and the Wagner Labor Disputes Act gave workers the right to organize and bargain collectively without company interference.

The Social Security Act.—Old-age pensions, which have long been granted in European countries, made their first appearance in the United States in 1923 when Montana approved such a plan. Since then thirty-five other States have followed suit. Pension systems exist for all employees

in the Federal civil service, and for civil service employees, such as police and firemen, in most large municipalities. These and other forms of insurance have been used by a few large private employers, notably the railroad companies, and by the trade unions. The last form of social insurance to gain acceptance has been insurance against unemployment. Wisconsin passed the first State law providing for this in 1932, and six others have since followed this example.

This State legislation was scattered and left many groups of workers unprovided with protection. Accordingly a Federal Social Security Act was passed on August 14, 1935, which deals comprehensively with these phases of social insurance. A Federal retirement plan for employees of private enterprises is set up which provides for pensioning industrial workers who reach the age of 65 by granting them monthly payments after that age, varying according to their previous wages and length of employment, but in no case exceeding \$85 a month. The funds for these pensions are to be derived from equal assessment on workers' wages and employers' payrolls, beginning at 1 per cent annually in 1937 and increasing to 3 per cent by 1949. It is estimated that some 25,000,000 of our population will be eligible to participate in these government benefits.

Another section of the act was intended to bring about the enactment of State unemployment benefit laws, although it does not directly provide Federal unemployment benefits for anyone. It provides for the imposition from January 1, 1936, of a Federal tax on certain classes of employers, but stipulates that if the State in which they carry on their business enacts proper unemployment insurance legislation, these taxes shall be credited to any State fund set up for this purpose. The tax is to be paid solely by the employers, the annual rate being 1 per cent of the payroll for 1936, 2 per cent for 1937, and 3 per cent for 1938 and succeeding years. The Federal government pays the cost of administration. Payments to unemployed workers vary according

to length of unemployment, previous wages, and other conditions.

The Social Security Act also authorizes appropriations from the Federal Treasury to be allotted among the States to aid them in their social welfare activities. Among these are allotments for pensions to aged, indigent residents, not to exceed \$15.75 monthly for each individual ; aid for dependent children equal to one-third of the State expenditures, but in no case to exceed \$18 a month ; maternal and child welfare ; vocational rehabilitation ; public health ; and aid for the blind.

The program thus outlined is comprehensive and humane, and brings the United States in line with European countries, which have long since legislated on this subject. There is evidenced in this and other legislation a growing tendency on the part of the workers to rely upon government action for a solution of labor's problems.

Wages and Hours Act.—On June 15, 1938, Congress climaxed the legislation on behalf of labor by an act which "put a floor under wages and a ceiling over hours." This provides : (1) a nationally uniform minimum wage of 25 cents an hour for industries engaged in interstate commerce for the first year, increasing to 30 cents the second year. At the end of seven years the rate will be 40 cents an hour, except where boards representing employers, workers, and the public may determine otherwise. (2) A 44-hour work week is set for the first year, 42 hours for the second, and 40 hours for the third and thereafter. Enforcement of these maxima is to be accomplished by requiring employers to pay the workers time and a half for all hours beyond the standard. (3) Children under 14 years of age are prohibited from working in industries engaged in interstate commerce.

Exemptions from the provisions of the act are made to take care of collective bargaining contracts, seasonal industries, and those handling perishable food, as well as for agricultural workers. An administrator under the Labor

Department is provided for who will appoint local boards to give the necessary flexibility to the administration of the act.

Conclusion.—The student of economic history will realize that the industrial changes since 1914 have not created new problems; they have merely pushed to the front in more insistent form old problems of the industrial revolution. The mechanization of industry is not new, but never has it proceeded so rapidly nor caused so great industrial displacement of labor. Nor is the failure on the part of employers to cut hours and increase wages in proportion to the increase in productivity a new phenomenon, only now its consequences in the form of reduced purchasing power, underconsumption, depression, and unemployment are better understood. Labor, suffering severely and undeservedly in a serious depression, insisted on a "new deal" at the hand of capital, and Congress, at the bidding of President Roosevelt, took a hand in the immediate solution of the problem by creating more jobs, and by recognizing the right of labor to help determine the conditions of employment. In doing this the Federal government has taken a long step toward the modification of the traditional doctrine of the freedom of the labor contract and of the right of employers to operate their businesses as they please. The further problems, as to the right of labor to share in the control and direction of industry, and as to the equitable share of labor in the products of industry, are still unsolved.

Wages and the cost of living.—The Bureau of Labor Statistics has for many years compiled index numbers of wages and of cost of living. The wages are wages per hour of those actually employed, exclusive of agricultural workers; hence, they do not represent annual earnings, nor do they take into account the length of the working day nor the amount of unemployment. The cost of living is based largely upon retail food prices, and therefore tends to exaggerate the importance of this item. They may however be cited as giving a picture of the trends. If wages and prices for the year 1913 be taken as the base and called 100, then

it is found that money wages in 1929, the highest point reached, were 234 ; by 1933 they had fallen to 153. This was a tremendous increase, but it was largely offset by a corresponding rise in the cost of living, which rose from 100 in 1913 to 171 in 1929 ; by 1933 this was down to 100 or just what it had been twenty years earlier. If these figures be combined so as to ascertain the purchasing power of wages in terms of the cost of living, it develops that the real wages of labor were 136 in 1929 and 138 in 1933, as compared with 100 in 1913. This apparent gain to labor was, however, offset by a decrease in the length of the working day and week, which completely absorbed the increase in hourly rates in the period 1913-29, and since 1929 the increase in the amount of unemployment has more than canceled the upward rise in real wages of those at work. But it must be accounted a real gain that the wage level was maintained, in spite of the depressive effect of an army of unemployed.

Another test of the economic well-being of the wage-earners may be found in the consumption of certain semi-luxuries, for which there is a wide demand. Thus, selecting for each article the year of maximum use, the per capita consumption of coffee increased from 7.91 pounds in 1871 to 13.94 (in 1931), that of sugar from 36.2 to 119.2 (in 1928), that of tobacco from 4.00 to 6.43 pounds (in 1929), and that of wheat and flour from 4.69 to 5.55 bushels (in 1927).

SUGGESTIVE TOPICS AND QUESTIONS

1. Explain the growth of cities in the United States. Was the movement true of other countries ? [A. F. Weber, *The Growth of Cities* ; J. Strong, *The New Era*, 188-197 ; W. D. P. Bliss, *Encyclopedia of Social Reform*, art. City and Social Reform.]

2. Compare the racial composition of the population in an important manufacturing city today with that of twenty-five or fifty years ago. [Census volumes on Population.]

3. What proportion of our illiterate, criminal, or otherwise undesirable population is composed of foreign-born ? [T. S. Adams and H. L.

Sumner, *Labor Problems*, 89 ; R. Mayo-Smith, *Emigration*, chap. 8 , P. F. Hall, *Immigration*, chaps. 5, 8.]

4. Do you think immigration should be restricted ? Why ? [Rep. U. S. Com'r. of Immigration ; Mayo-Smith, chap. 12 , Hall, part 3, chaps. 10-14 ; Bliss, *Encyclopedia of Social Reform*, art. Immigration.]

5. Should the Chinese restriction law be repealed ? [*Report Industrial Commission*, X, 747-802 , Hall, chap. 15 ; J. W. Foster, *American Diplomacy in the Orient*, chap. 8.]

6. Describe the distribution of the important races in the United States. Why have they settled where they are ? [*Report Industrial Commission*, XV, 492-616 ; Hall, 88-95.]

7. Describe the conditions in the slums of one of our large cities. [*Report Industrial Commission*, XV, 449-492 ; 7th Spec. Rep. of U. S. Dept. of Labor ; *Hull House Maps and Papers*.]

8. Has the mixture of races through foreign immigration been a source of strength or weakness to the American nation ? [Mayo-Smith, chap. 8 ; Hall, 98, 172 ; *Report Industrial Commission*, XV, 304-316.]

9. What further labor legislation, if any, should be passed in the United States ? [J. G. Brooks, *The Social Unrest*, chap. 12.]

10. Do you approve of trade-unions ? Why ? [J. Mitchell, *Organized Labor*, chaps. 17, 19 ; C. J. Bullock, *Introduction*, 432-441 ; Bliss, *Encyclopedia of Social Reform*, art. Trade Unions, IV, V.]

11. Is a labor union a monopoly ? [Seager, *Introduction*, 406-8 ; J. R. Commons, *Trade Unionism and Labor Problems*, 94.]

12. Should trade unions be incorporated ? [Adams and Sumner, 271-279.]

13. What should be the attitude of strikers to non-union men who are willing to take their positions ?

14. Do you approve of the open or the closed shop ? [*Report Industrial Commission*, VII, 715-722 ; V. S. Yarros, in *Review of Reviews*, XXXI, 589.]

15. If a universal six-hour day were introduced, would there be more work for the unemployed ? [J. Rac, *Eight Hours for Work* ; G. Gunton, *Wealth and Progress* ; F. A. Walker, in *Atlantic Monthly*, June, 1890.]

16. Are strikes necessary ? Do they pay ? [*Report Industrial Commission*, XVII, lxii ; Adams and Sumner, 206 ; Seager, *Introduction*, 398.]

17. What is meant by a boycott ? A lockout ? The sympathetic strike ? Do you approve of these methods of conducting an industrial dispute ? [Adams and Sumner, 175 ; E. Levasseur, *The American Workman*, 237-240, 250-257.]

18. Describe compulsory arbitration in New Zealand. [H. D. Lloyd, *A Country without Strikes* ; Adams and Sumner, 319-325 ; *Report Industrial Commission*, XVII, 519-539.]

19. Describe the work done at Tuskegee Institute. [B. T. Washing-

ton, The Successful Training of the Negro, in *World's Work*, August, 1903.]

20. Is the population increasing as rapidly today as it did in colonial times (pp. 55-56)? Is there any difference in the rate of increase of white and colored? In different parts of the country? As between city and country?

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CHAPTER XXIX

MANUFACTURES

The problem of manufactures in the earlier periods of our national development has been how most quickly to exploit and work over by comparatively few processes the rich natural resources. Today attention is being given increasingly to better organization of industry, more complete utilization of the raw material, improved appliances and machinery, and reduction of costs along all lines. These became increasingly important as American manufacturers entered foreign markets in competition with rivals of other nations.

Development of manufacturing.— While the making of tools has always preceded the making of consumable goods for immediate use, manufactures have now reached a stage of development where the tool and machine making industries have assumed special importance and occupy a distinct place. In our modern capitalistic industry almost all consumers' goods are made with the help of machinery. An example of the manufacture of finished consumption goods is the textile industry, which furnishes cloths, carpets, and similar articles for use ; an example of a capital goods industry is the iron and steel industry, which provides other industries with machines, tools, and equipment of various sorts. Thus in 1910 the census enumerated 346 products of the iron and steel industry, of which 98 were for direct consumption, and 248 were machines or articles for use in other industries. The most striking and characteristic development of manufactures in the United States during the past quarter-century has been in the latter group. This is shown by the character of the leading manufacturing industries in the United States.

Of the sixteen general groups of industries listed by the

census the first two places were held by food and textiles, or immediately consumable goods. But the next six groups of industries were iron and steel machinery, transportation equipment, chemicals, products of petroleum and coal, and non-ferrous metals — most of which were producing intermediate goods designed for the work of further production. It seems evident that the manufacturing industries which supply construction materials and machinery have come to occupy a commanding position in our economic system.

The growth of manufactures as a whole during this period is shown in the following table :

GROWTH OF MANUFACTURES, 1914-1935 *					
YEAR	Number of Establishments	Average Number of Wage-Earners	Wages	Cost of Materials	Value of Products
			(In millions of dollars)		
1914	177,110	6,896,190	4,068	14,278	23,988
1919	214,383	9,000,059	10,461	37,233	62,042
1924	187,390	8,384,261	10,730	35,936	62,714
1929	210,959	8,838,743	11,621	38,550	70,435
1935	169,111	7,378,845	7,544	26,263	45,760

* Beginning with 1914 only those establishments having an annual product of \$5,000 or more have been included in the census.

Effect of the World War upon manufactures.— When the war began in 1914 American industries were in a depressed state, but the urgent demand from the European belligerents for war supplies of every sort quickly led to revival and expansion. Our exports to the five leading nations of the Entente Allies grew from \$927,000,000 in the fiscal year 1914 to \$2,432,000,000 in 1915 and \$3,012,000,000 in 1916. These foreign orders were for explosives, iron and steel, copper, brass, bronze, and zinc, automobile parts, boots and shoes, canned goods, meat, dairy products, and similar articles. As a result, manufacturing industries which could produce munitions and war supplies expanded and prospered greatly. With the diversion of labor and capital into war

industries, however, other enterprises suffered correspondingly. Building operations were almost at a standstill and in many cities factories were shut down, while unemployment and high prices showed that the war prosperity was very unevenly distributed.

The same thing was true in even greater degree after the United States entered the war in April, 1917. In order to mobilize the industrial forces of the nation and direct all efforts to the single task of winning the war, there was early created a War Industries Board. Its functions were to obtain materials for military purposes with the minimum dislocation of industries ; to restrict non-war production ; and to fix maximum prices. Through the Priorities Board fuel, transportation facilities, labor, and even credit were assigned first of all to war industries, while those producing luxuries or dispensable goods were forced to curtail or even to suspend their operations.

After the armistice there was a general resumption of activities, which rushed to extremes in 1919 and 1920 under the stimulus of credit inflation and high prices. A panic was narrowly averted in the latter year, and a period of depression ensued which was brought to an end in 1922 by the more normal and healthy resumption of business. In spite of the ups and downs of the war period, there were certain definite additions to the manufactures of the country as a result of our experiences. The most important are undoubtedly the dye and chemical industries, of which before the war Germany had a practical monopoly.

After 1922 there was another rapid expansion of manufactures, which reached its climax in 1929. As a result of the improvements in organization and of the larger use of machinery, neither the number of establishments nor of wage-earners reached the high level of 1919, but wages, materials, and value of products passed even that mark. The panic of 1929 and the resulting depression brought about a disastrous reduction, which is clearly shown in the

table for the year 1935. After that time there was a slow, but steady recovery until 1938.

Causes of growth.—The primary cause for the very rapid development between 1914 and 1929 is to be found in the growing demand. This had resulted both from the increase in the population at home and also from the opening up of new markets abroad for our manufacturers. The temporary war demand for American manufactures only hastened and enlarged a movement already going on, and which continued, though on a diminished scale, after the cessation of hostilities. But the domestic demand was more important than the fluctuating foreign market. For the great increase in the consumption of manufactures at home the growth in population was of course the main explanation, but mere increase in numbers does not tell the whole story. There has at the same time been a steady, if slow, improvement in the well-being of the American workingman and a consequent increase in his purchasing power. New demands have also been quickened, if not wholly created, by new methods of advertising, salesmanship, and marketing, so that the market has constantly expanded.

On the side of supply, that is the ability of American manufactures to meet the demand, the most important factor is the abundance and richness of raw materials. The basic materials for practically every branch of manufacturing industry are to be found in the United States. Another factor contributing to our industrial pre-eminence is the increasing supplies of capital which are available for the expansion of existing plants or the building of new ones. Capital may take the form of buildings, of equipment, of new machines, or of better transportation agencies, all of which have shown marked increase. Obsolete machinery and processes have been quickly scrapped in favor of better devices, so that there has been not merely an increase in the amount of capital applied to manufactures but also an improvement in its efficiency.

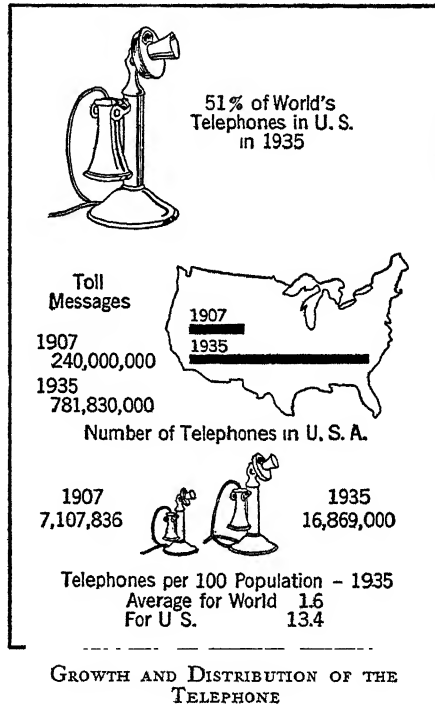
Finally, the labor supply is perhaps the most important element in the growth of industry, for upon its quantity and quality depend the effective use of the raw materials and capital. While the increase in numbers has not been so rapid since 1914 as it was in the preceding twenty-year period, yet there is available for manufactures a considerable amount of labor set free from the primary extractive industries, especially agriculture. As a smaller proportion of the population is needed to raise the necessary food supplies, the labor set free from this occupation may be devoted to transforming for human use the raw materials. It may also fairly be claimed that the quality of labor is improving. The percentage of native-born whites among the population groups has somewhat increased, and the general level of education has been raised by an excellent public school system. As yet, however, little has been done toward training the mass of the workers along vocational lines.

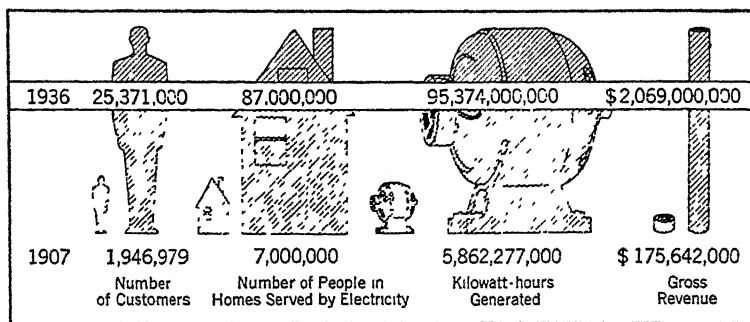
Inventions.—Owing to the relatively high wages paid labor, as well as to a certain venturesome open-mindedness, manufacturers in the United States have always been willing to introduce labor-saving devices and to experiment with new mechanical appliances. Machine methods have been developed further in this country than probably anywhere else in the world. Their profitable introduction was made possible by the enormous domestic market, which would absorb large amounts of uniform standardized articles, and by the character of the raw materials which must be worked up. In no period of our national history have more important or far-reaching inventions been made than in the first third of the twentieth century. Technical improvements in the processes of manufacture themselves, methods of handling freight, the internal organization of the factories, the use of power devices, and the introduction of labor-saving devices of every kind illustrate some of the lines along which progress has been made. Space does not permit elaboration, but a few words may be devoted to what is probably the most significant development in industry since the inven-

tion of the steam engine, namely the use of electrical energy for various industrial purposes.

Before the Civil War electricity was used commercially only in the telegraph and the electro-plating industries. In 1876 the telephone was invented by both Bell and Elisha Gray, but the first patent was obtained by Bell. Almost simultaneously Brush invented a commercial arc-lighting apparatus, while Edison and Elihu Thompson were developing the constant potential dynamo suitable for operating Edison's perfected incandescent lamp, which was first introduced in the early eighties. These were soon followed by still more important inventions for the employment of electricity as a motive power, such as the introduction of the alternating current system through the perfection of transformers by the Westinghouse interests.

The next step was the application of the electric motor to railway transportation. Central stations were rapidly introduced, which furnished power as well as electric lighting, and about 1890 electric motors began to be used for traction in our city streets, superseding horse-cars and cable-cars. Electric cars were at first confined to interurban and street railways, but today large railroad systems have electrified





THE ELECTRICAL INDUSTRY IN THE UNITED STATES

long stretches of road, and our newest battleships are being electrically driven. The most significant change now taking place in the motive power for manufactures is the substitution of electricity for steam, though this movement is only in its infancy as yet. Water power even in the most inaccessible places has been made available by long distance transmission to manufacturing centers for motive power and for lighting. In 1936 the electricity produced in the United States amounted to about 114,000 million kilowatt-hours.

Even more indicative of the immense possibilities of the future is the development of the electro-chemical industries, such as carborundum, which owe their very existence to electricity. The electric furnace is today revolutionizing the metallurgy of steel. In 1900 wireless telegraphy opened a new field of experimentation, which now includes the radio. A growing field for electricity is the remote control of all types of machinery, illustrated by the perfect control of the torpedo sent out from a battleship. Today the employment of electric appliances in the household and on the farm as well as in the factory is general, and shows the diversity of uses to which electricity is applicable.

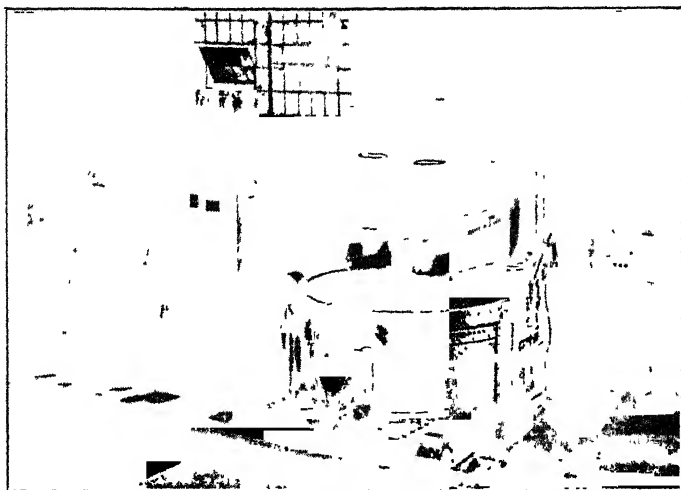
The patent system.—An important factor in the development of inventions in any country is the patent system. That of the United States has been effective in stimulating the inventive genius of its people, but progress along these lines is no longer left to the efforts of some talented individual.

Practically every great business today has its research department in which experiments are being carried on at an expense far beyond the means of an individual inventor. The results of such investigations are patented, and new inventions by unattached individuals are generally bought up by these big businesses. At this point certain defects in our patent system have been revealed.

Although our patent laws have stimulated invention they have also led to monopoly and the suppression of valuable devices. The holder of a patent now obtains a complete monopoly in his invention, and may, if he chooses, suppress it instead of marketing it. When a new device is patented, whose use would revolutionize an industry and make existing plants useless, it is often bought up by the interest affected and then suppressed. In this way progress is prevented rather than aided. Such abuses have been notorious in the fields of photography, telephony, shoe machinery, and petroleum refining. Every country in Europe, on the other hand, except one, makes a patent forfeitable if left unutilized for two or three years. It is urged that in the United States there should be no monopoly rights granted under a patent, but only a royalty right, so that anyone so wishing would be permitted to manufacture a patented article under license from the government and upon payment of a fixed royalty.

Whatever may be the defects of our patent system, it can not be doubted that it has stimulated invention. In May, 1935, Patent No. 2,000,000 was issued to an American inventor. This number may be compared with 871,532 issued in France by January 1, 1934 ; with 797,153 in Great Britain, and with 583,728 in Germany for the same date.

Iron and steel industry.— There is probably no industry of such basic importance as this, for iron and steel in some form enter into practically every other industry. Indeed the modern industrial era is called for this reason an "age of steel." The United States today leads the whole world as a producer both of pig iron and of manufactured iron and steel. The value of the crude products of iron and steel manufac-



ELECTRIC STEEL FURNACE

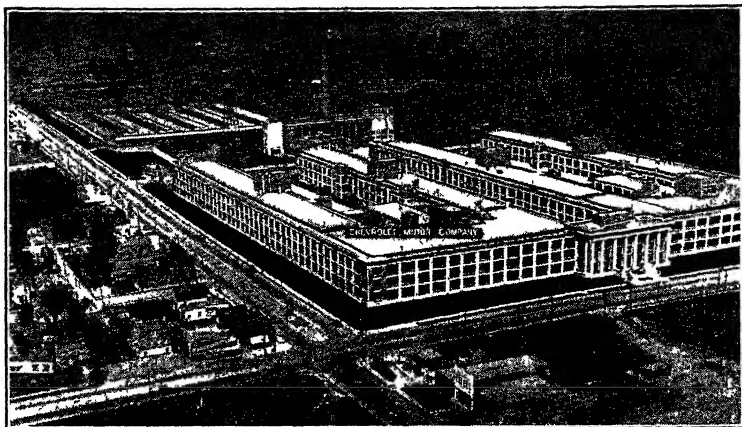
In an electric furnace a very pure heat is produced by means of electricity. By varying the materials any impurity can be eliminated, leaving the glowing steel as pure as crystal. The alloys are then mixed in, and the steel is thus made fit for any kind of use desired.

tured in the United States rose from \$1,263,318,000 in 1914 to \$4,127,214,000 in 1929. If to these be added the commodities made primarily or largely of iron and steel, not including machinery, the grand total in 1929 was \$7,137,928,000.

The following table shows the growth of the crude iron and steel industry during this period :

CRUDE IRON AND STEEL AND ROLLED PRODUCTS, 1914-1935 *					
YEAR	Number of Establishments	Annual Average Number of Wage-Earners	Wages	Cost of Materials	Value of Products
			(In millions of dollars)		
1914	587	278,072	211	855	1,263
1919	695	416,748	711	2,302	3,623
1925	595	399,914	660	2,429	3,711
1929	591	419,534	730	2,514	4,127
1935	396	359,630	440	—	1,931

* See note to table on p. 529.



THE ST LOUIS ASSEMBLING PLANT OF THE CHEVROLET MOTOR COMPANY
This plant, with its capacity of 1400 completed units per day, illustrates large-scale production.

Of all the industries dependent upon the iron and steel industry for its materials, the manufacture of automobiles has had the most spectacular rise. First mentioned in the census of 1900, with 57 establishments and an output valued at \$4,748,000, it produced in 1929 more than 5,294,000 cars and parts worth \$5,260,723,000 in 1398 establishments. In 1935 there were registered in the United States 26,221,000 motor vehicles, of which about seven-eighths were passenger cars; the others were trucks or busses. Since then the number has increased slightly, but the proportion of cars to the population gives about one car to every five persons.

Textile manufactures.—The combined textile industry, comprising the manufacture of fabrics, the clothing industry, and textile products, ranked second in 1929 with a total product of \$9,243,303,000. The growth of the textile fabric industry alone, which includes the manufacture of cotton, woolen and worsted, silk, and hosiery and knit goods, together with dyeing and finishing, is shown in the following table :

TEXTILE FABRIC INDUSTRY, 1914-1931 *					
YEAR	Number of Establishments	Annual Average Number of Wage-Earners	Wages	Cost of Materials	Value of Products
			(In millions of dollars)		
1914	5,942	950,880	....	1,185	1,935
1919	7,143	1,052,327	....	3,258	5,482
1925	7,470	1,110,209	1,066	3,234	5,343
1929	6,974	1,096,163	1,052	2,821	5,043
1931	6,111	886,979	745	1,495	2,965

* See note to table on p. 529.

In the manufacture of cotton goods the United States ranks easily first among the nations of the world on the basis of the amount of raw cotton consumed. Judged by the number of spindles employed, however, or by the value of the product, this country would take second place after Great Britain. The woolen and worsted industry was the most important branch of textile manufactures until the late nineties, but has shown a slower development than the other branches. One of the striking features of the recent development of this group, on the other hand, has been the rapid growth of the manufactures of hosiery and knit goods, and of silk goods. Their progress must be attributed to the introduction of machine methods and the application of inventive genius and mechanical skill. In the manufacture of cordage and hemp the United States probably holds first place.

Trust legislation.—Under the sponsorship of President Woodrow Wilson two important pieces of legislation, directed against the evils of monopoly, were passed by Congress in 1914. The first of these declared "unfair methods of competition in commerce" to be unlawful, and created a Federal Trade Commission of five members to administer the act. The commission superseded the former Bureau of Corporations, and was given power to investigate charges of unfair methods, to report its findings, and to order the offender to cease using these unfair methods. Appeal may be

made to the courts to enforce such orders. This act was directed against unfair practices by any business, and has been more frequently invoked against small offenders than against "big business."

The Clayton Anti-trust Act, the second of these two laws, also defined specifically certain unfair practices, such as discrimination in prices between different purchasers, exclusive contracts which prevent purchasers of goods from dealing in competing goods, etc., all of which were declared unlawful. The act also prohibited the acquisition by one corporation of stock in another, where the tendency would be "substantially to lessen competition." Interlocking directorates, the relations of common carriers with construction companies, and similar practices were also restricted.

In two respects, however, the legislation with regard to combinations has been made more liberal. It was felt that the fullest possible co-operation among merchants engaged in foreign trade was desirable, if they were to compete in foreign markets on a basis of equality with merchants from other countries. Accordingly the Webb Export Trade Act of 1918 provided that American exporters might organize associations for conducting export trade without thereby rendering themselves liable for violation of the anti-trust laws. The same principle was applied also in the Co-operative Marketing Act, passed in 1922, which recognizes the right of farmers, ranchers, and growers to combine for the purpose of effecting more efficient distribution of their products.

The National Industrial Recovery Act and the codes.—

The depression which followed the crisis of 1929 grew progressively worse during the next three years, and the number of business failures swelled to alarming proportions. Attempts on the part of the Hoover administration to deal with the problems consisted mainly of easier credit to industry through the Federal Reserve system, the grant of Federal aid to ailing industries, railroads, and banks through the Reconstruction Finance Corporation, and some public building. The policy of "rugged individualism" failed to restore pros-

perity, however ; the business and financial leaders had, in many instances, been discredited, and the policy of *laissez faire* had led to undisciplined and destructive competition. The ethics of business deteriorated under the pressure of unfavorable conditions, and reputable producers felt forced to adopt the practices of their less honorable competitors. In these circumstances the industrialists were willing to unite against unfair practices.

The National Industrial Recovery Act authorized industries to organize representative associations and to frame codes of fair competition, which, upon approval by the President, should become binding on the whole industry. Such codes must not encourage monopoly nor oppress the small business man by imposing inequitable conditions. An approved code should constitute the standard for an industry or trade and violations should be deemed an unfair method of competition within the meaning of the Federal Trade Commission Act. The President was given authority to draw up a general agreement for all industries until they had time to formulate their separate codes. This blanket code abolished child labor, established a work week of 35 hours for industrial and 40 for white-collar workers, and fixed minimum wages. To administer these codes the National Recovery Administration (NRA) was set up, with Hugh S. Johnson as administrator. A year later General Johnson claimed that 450 codes had been signed, under which 95 per cent of all industry and trade was operating.

Whatever the merits of this experiment at self-regulation of business, it was ended before a thorough test had been given by being declared unconstitutional by the Supreme Court on May 27, 1935. Certain achievements may, however, definitely be credited to this act. Many unfair and uneconomic practices had embedded themselves in American competitive methods ; these were uncovered and in part at least corrected by the co-operation of business men themselves. The curse of racketeering, made possible only by a corrupt alliance of business and crime, is being diminished.

Certain features of the codes will probably endure, such as the standards of fair competition, the open price system, the elimination of child labor, the prohibition of price-cutting, and similar practices. The success of such a policy lies with the business leaders and depends in considerable measure on their desire to establish conditions of fair competition in industry. They must acquire a social viewpoint and learn by collective methods to curb their anti-social competitors, and also to recognize more fully the rights of labor.

Tariff legislation.—The failure of the Payne-Aldrich tariff to reduce the rates, especially those which protected the trusts, caused general dissatisfaction, and in the elections of 1910 and 1912 popular disapproval was shown by the election of a Democratic President and Congress. In the Underwood tariff of 1913 substantial reductions were made in many of the higher duties, and the free list was enlarged, wool, iron ore, pig iron, steel rails, agricultural implements, and other articles being admitted free, and provision being made for free sugar after two and a half years. The act was by no means a free trade measure, however, the average rate of duty being about 30 per cent as against the 40 per cent of the previous law. Since a reduction of revenue was expected, the act provided for the imposition of an income tax. The outbreak of the war the following year caused a falling off of imports and of revenues from tariff duties, and this was even more true after the United States entered the war. Reliance for Federal revenues came, therefore, to be placed upon income and internal revenue taxes of various kinds, and no changes were made in the tariff schedules, except the repeal of the provision placing sugar upon the free list. By the act of September 8, 1916, a Tariff Commission of six members was created. Its functions were purely investigational and advisory, but its personnel was such as to command respect.

Upon the inauguration of a Republican President in 1921 the dominant party proposed a revision of the tariff upward. The great fall in the prices of agricultural products in 1920

and the resulting hard times for the farmers led to a demand for protection to farm products. Accordingly the so-called Emergency Tariff was passed in 1921, which raised the duties on wheat, corn, meat, sugar, cotton, wool, and many other agricultural products. This was replaced the following year by the Fordney-McCumber Act, which raised the level of duties above that of the Underwood Act but below that of the Payne-Aldrich tariff, or to about 38 per cent. In addition to the familiar demand that import duties must cover the difference in costs of production between foreign and domestic goods a new argument was advanced to meet the changed conditions in Europe. This time it was urged that, because of the depreciation of foreign currencies, the countries with cheap money enjoyed an advantage over the United States, which alone had maintained its currency upon the gold standard. Rates would therefore have to be increased in order to protect American industry against cheaply produced foreign goods.

Under this act increased protection was given not only to agricultural products, but also to most manufactured wares. Pig iron, steel rails, and other articles in the metals schedule, which had been admitted free by the Underwood tariff, were again put on the dutiable list. Particular attention was given to the so-called "war-babies," such as the chemical and dye industries which had developed during the war, and they were given ample protection.

Continued agrarian discontent, which was now well organized and militant, forced another revision of the tariff in 1930. Originally designed as a partial revision to increase protection to agricultural products, the bill was seized upon by manufacturing interests to obtain special favors for themselves in every direction. The clash of interests prevented the gaining of all these demands, but, as finally passed, the Hawley-Smoot Act fixed the average rate of duties at about 41 per cent.

In spite of the election of a Democratic President and Congress in 1932 no further effort has been made to revise

the tariff, but in 1934 a Reciprocity Act was passed. This "Yankee swapping" tariff measure, as it was called, conferred on the President, for a period of three years, the authority to make tariff trades with other countries, and also to fix rates on articles imported into the United States. The first reciprocity treaty under this act was the Cuban-American trade agreement of August, 1934. This was followed by others with Belgium, Sweden, Columbia, Brazil, and Netherlands, during 1935. By June, 1938, seventeen treaties had been negotiated.

SUGGESTIVE TOPICS AND QUESTIONS

1. What connection is there between the growth of cities and manufacturing? [Twelfth Census, VII, 218, 256, A. F. Weber, *Growth of Cities*.]
2. What is the principal manufacturing industry of your home city? Why was it situated there?
3. Is the West likely to become a manufacturing section? Give your reasons.
4. To what extent has child labor been employed in manufacturing? What is the situation in the South today? [W. C. Hunt, *Workers at Gainful Occupations*; W. F. Willoughby and C. de Graffenried, *Essays on Child Labor*.]
5. Mention the chief economies due to the use of electricity in manufactures. [Twelfth Census, VII, cccxxvii, P. Leroy-Beaulieu, *The United States in the Twentieth Century*, 214-216, G. S. Morrison, *The New Epoch*.]
6. What are some of the notable achievements in the generation and transmission of electric power? [Twelfth Census, VII, 322; consult Poole's Index for additional references.]
7. Describe the utilization of wastes and by-products in the more important industries. [Twelfth Census, X, 723-748.]
8. Trace the growth of some one industry that has shown especially rapid growth, and give the principal reasons therefor. [Twelfth Census, IX, X.]
9. Describe the iron ore supplies of the Lake Superior region and the labor-saving ore-mining and handling devices used. [F. W. Taussig, in *Quarterly Journal of Economics*, XIV, 156-157; H. R. Mussey, *Combination in the Mining Industry*.]
10. Describe the organization and management of the United States Steel Corporation, the National Cash Register, or other large company. [Report Industrial Commission, vols. VII, XIV; E. S. Meade, *Trust Finance*, chap. 11.]

11. Illustrate in greater detail some of the economies effected by concentration in large establishments. [Twelfth Census, X, 723 ; *Report of Industrial Commission*, I, 68 , J. W. Jenks, *Trust Problem*, chap. 2.]

12. Is there any connection between the industrial development of the United States and the rise of protectionism in England ? [W. J. Ashley, *The Tariff Problem*, chaps. 4, 5.]

13. Has the total wealth of the United States been increased by the policy of protection ? [C. J. Bullock, *Introduction*, 348, 354 ; F. W. Taussig, *Tariff History*, 361 ff.]

14. Products from the Philippines paid import duties upon being imported into the United States before annexation ; if after annexation they were admitted free, who would gain and who lose ?

15. Is it right or expedient to give a man a complete monopoly over a patented invention for seventeen years ? Are inventions ever patented and then not used ? Would it be better to throw open the invention to everyone on condition of paying royalty to the inventor ? [J. W. Jenks, *Trust Problem*, 1st ed., 220.]

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CHAPTER XXX

MECHANIZED AGRICULTURE

Although the old system of wasteful, extensive agriculture had by no means come to an end by 1914, progress was being made, and more orderly production was being attained. Agriculture had finally achieved an approximate balance with other branches of economic activity after a half-century of unbalanced production. The World War disturbed this equilibrium since it led to a great increase in output without a corresponding permanent increase in demand, a situation which still causes very serious agricultural problems. The remedy for these problems was sought in an appeal for government assistance, but the permanent solution lies in better farming and marketing. A painful process of readjustment is now taking place, a process certain to result in better technique, more accurate knowledge, the substitution of scientific methods for rule of thumb, and, inevitably, the elimination of unproductive or sub-marginal farms. The problems facing agriculture are those of better organization, of marketing and credit, and of education.

Effects of the World War.—The first effect of the war was to cause a great expansion of agriculture in the United States. As a result of the withdrawal in Europe of millions of men from productive industry, it became necessary for the belligerent countries to draw a larger part of their supplies from the non-belligerent countries. The United States was in much the same position that it had been in during the Continental Wars after 1793, in that it was the only neutral nation capable of supplying these needs. The exports of cereals, meats, horses, mules, and other agricultural products increased enormously, and at the same time prices rose so that farmers' profits were very large. Under the impulse of these forces much marginal land hitherto unimproved or in pasture was brought under cultivation, machinery was used on a larger scale, and the output was greatly increased. The

following table shows that in the ten years from 1910 to 1920 more than 77,000,000 acres of new land were added to the farm area.

INCREASE IN FARMS, 1910-1930			
	1910	1920	1930
Number of farms	6,361,502	6,448,343	6,288,648
Land in farms, acres	878,798,000	955,884,000	986,771,000
Per cent of land in farms.	46 2	50 2	51 8
Average acreage per farm	138 1	148 2	156 9
Per cent of population that was rural	54 2	48.6	43 8

Even after the armistice the European demand for American food-stuffs and raw materials continued. These supplies were necessary to start the mills and factories and feed the war-stricken people until they could resume their normal peace-time activities. They were sold, moreover, at record prices, partly because of scarcity and still more because of inflation, and brought greatly increased incomes to farmers and planters. These men, assuming that the foreign demand at high prices would be permanent, still further expanded their operations and speculated wildly in farm land. Much of the capital invested in land and farm machinery was borrowed and as a result 150,000 farmers placed mortgages on their farms between 1910 and 1920.

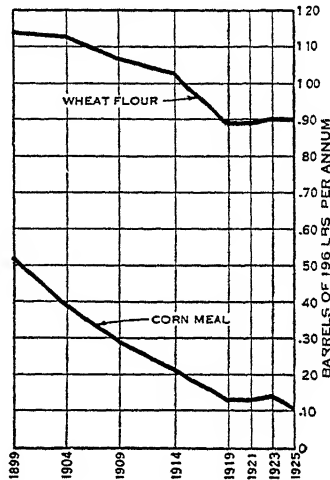
✓**Agricultural depression.**— By 1920 conditions in Europe were more normal, the discharged soldiers were producing their own supplies, and the necessity imports from the United States fell off. With this decline the inflated prices of agricultural products fell precipitately to the pre-war level. Between December, 1919 and December, 1920 wheat dropped from \$2.15 a bushel to \$1.44, corn from \$1.25 to 68 cents, and cotton from 36 to 14 cents a pound ; the following year prices were even lower. The farmers who had bought land at high prices or who had mortgaged their farms suffered greatly, for prices of manufactured products did not decrease

so rapidly, and they were at a disadvantage both as debtors and as consumers. Production in the United States was not easily reduced, however, and American farmers were faced again with the problem of relative over-production and low prices which had caused such profound discontent fifty years previously. There was once more a lack of balance between supply and demand, such as had prevailed before 1900.

Production had been greatly expanded as a result of high prices resulting from an abnormal foreign demand, of governmental encouragement,¹ of farm mechanization, and of improvements in agriculture. The wheat acreage increased by 30,000,000 acres, cotton by 11,000,000 acres, and other crops proportionately. Much of this increased acreage was on semi-arid grazing land; at \$2 a bushel wheat could be grown on such land at a profit, but when prices fell it would not pay the costs of production. Ruined later by erosion and dust storms, the waste of this land may be counted as one of the costs of the war. The immediate effects were highly depressing, as such land did not at once go out of cultivation, and agricultural production continued on the high war level in spite of falling prices.

Demand, on the other hand, was lessened by several changes. In the first place, as was just pointed out, foreign demand fell off considerably. But so did domestic demand.

¹ In 1917 the Federal government practically guaranteed the farmers \$2.20 a bushel for wheat, and \$2 in 1918. As a result of patriotic appeals for greater production some 2,000,000 war gardens were planted, more than 1,000,000 acres in city lots being put under cultivation.



DECLINE IN AVERAGE PER CAPITA CONSUMPTION OF WHEAT FLOUR AND CORN MEAL FROM 1899 TO 1925 IN THE UNITED STATES

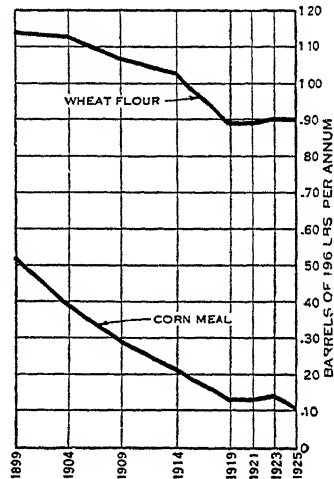
MECHANIZED AGRICULTURE

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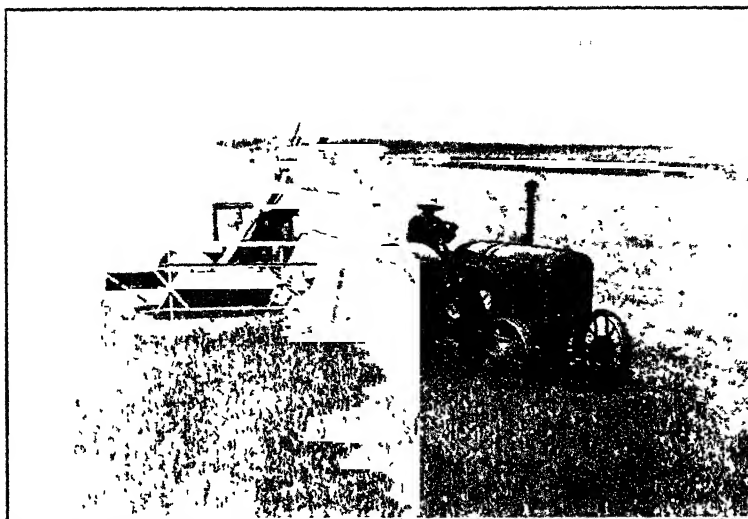
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DECLINE IN AVERAGE PER CAPITA CONSUMPTION OF WHEAT FLOUR AND CORN MEAL FROM 1899 TO 1925 IN THE UNITED STATES

more meat," "Drink a quart of milk a day," and other admonitions appeared for a time, but this was soon given up. Agriculture next invoked the aid of the chemists and other scientists to find new industrial uses for agricultural products. Corn was already used as the raw material for starch, alcohol, cellulose, and other products, but now the manufacture of glucose or corn sugar from corn, of wall-board and paper from corn-stalks, and of furfural (used in dyes, resins, medicines, etc.) from corn cobs was vigorously pushed. The passage of legislation to compel the mixture of a certain proportion of corn alcohol with gasoline was urged by many farmers. From skim milk casein is extracted and used in the preparation of wall paper, paints, and glue ; experiments were carried on in the extraction of albumen and sugar of milk, but the development of these industries lies in the future. Straw was being used for paper and cardboard, but attention was now directed to the utilization of the straw oil and pitch contained in it. The use of cotton seeds for the manufacture of oil, oleomargarine, lard, and soap, of cotton linters for rayon, and of the by-products of the slaughtering and meat-packing industry for many diverse products, all showed the possibilities which industry offered to agriculture.

dissatisfied with the conservative policies of the American Federation of Labor and wished to use extreme measures to enforce their rights. Wages in many lines had not risen so rapidly as the cost of living, and this had caused dissatisfaction. A long series of strikes occurred in 1919, involving a total of 4,000,000 men, culminating in the steel and the coal strikes, and leading in the latter case to intervention on the part of the government. Both of these strikes were lost, but the next year, in spite of these failures, about 1,500,000 men struck in other trades, and 1,000,000 more in 1921. In 1922 the railroad unions, fearing the loss of their high wages when the railways were returned to private ownership, conducted an "outlaw" strike. This was soon ended, but the year saw 1,600,000 men out on strike. The return



Courtesy of International Harvester Company

NEW 8-FOOT COMBINE

This small one-man combined harvester-thresher is especially adapted for use on smaller farms where binders have heretofore been generally used. The power comes directly from the tractor through a power take-off. After being threshed and cleaned, the grain goes to a 20-bushel tank mounted on the machine, from which it may be easily delivered to motor truck or wagon.*

saving machinery. The basic machine was the gasoline tractor, which was introduced in 1905 but spread slowly until war needs stimulated its improvement and general use. In 1930 there were 920,000 tractors, mostly light general-purpose machines, on American farms. The rapid increase in the number of tractors made possible the introduction of farm machinery adapted to using this power, and improvements began to be made in tractor-drawn machines. The most important of these is the extraordinary harvester-thresher or combine, which is drawn by tractor to the field; there, in a single operation, the grain is cut, carried by means of a conveyor, threshed, and elevated to a bin on top of the machine. Other tractor-drawn machines are improved plows, planters, rotary hoes, cultivators, corn huskers and shredders, and many others.

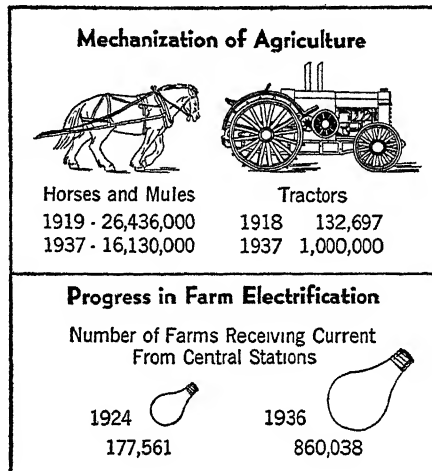
Economic results of farm mechanization.—The consequences of this farm mechanization have been numerous and far-reaching. An obvious result was the elimination of eight million horses and mules, which formerly furnished the power, and the saving in the land and labor which were required to grow forage for and to take care of these animals.

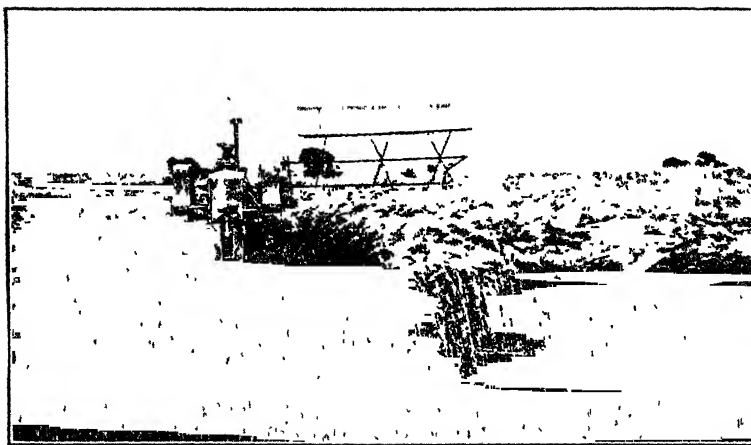
More important was the increase in the productivity of agricultural labor. The change within a century and a quarter has been phenomenal. In 1800 a man with a sickle could cut one-half acre of wheat a day; in 1831 a strong man could harvest $2\frac{1}{2}$ acres a day with a cradle; in 1840 with the reaper he could cut 6 acres a day, but five men had to follow the machine and shock

the grain; in 1880, with the self-binder, he could cut 20 acres a day and the machine automatically bound the grain; today, with the tractor and combine, he can cut 40 acres a day and deliver the grain threshed and sacked.

Unit costs of production have been greatly reduced. In Nebraska it cost 38 cents per bushel to produce wheat with improved machinery, as compared with 86 cents per bushel under the older methods. In Mississippi the acre costs of raising cotton were \$5.20 with mechanical equipment and \$14.20 with hand tools. Many other illustrations might be given, but these must suffice.

The size of the profitable farms has been greatly enlarged. The average farm grew from 138 acres in 1910 to 157 acres in 1930, but these included the small cotton





Courtesy J. I. Case Co.

MODERN GENERAL-PURPOSE TRACTOR

This shows the binding of a heavy crop of barley with a tractor and a 10-foot power binder on a farm near Verona, Wisconsin.

patches of the South. In the grain belt of the West North Central states, where the new machinery is principally used, the average size was 239 acres in 1930. Competent agriculturalists are advocating a 640-acre tract as a family farm in the corn belt, if the maximum economies are to be obtained from the improved machine methods. This puts a premium on large-scale farming. From about 1914 to 1930 a strong movement set in toward large-scale farming. To cite an extreme instance, there were 35,000 wheat farmers in Montana in 1917, but only 14,000 in 1928.

Social results of mechanization.—The social consequences of this mechanization were also momentous. In the first place, since not so much man-power was needed on the farms, a great many agricultural laborers were set free for other pursuits, and these sought employment in the developing manufactures. There was therefore a steady movement of population from the country to the city, resulting in a redistribution of the population and a readjustment of so-

cial organization and living conditions. The proportion of the population living in towns of 8000 or more inhabitants grew from 16 per cent in 1860 to over 49 per cent in 1930. We were now predominantly an urban and industrial people.

A second result has been the lightening of the arduous tasks of the farm. The usefulness of the gasoline engine was not limited to the work of plowing, cultivating, threshing and drawing loads.

It has been set to work turning the milk separator, the churn, the silage cutter, the washing machine, the sausage grinder and stuffer, the feed and fanning mills, and the grindstone. It pumps water for the stock, for the house water tank, and for irrigation; it saws wood, shells corn, digs post holes, and drills the well. It mows the lawn, and runs the milking machine, the vacuum cleaner, and the lathe in the work-shop. By its power the barn and orchard are sprayed with disinfectant, and the sheep are sheared. Granaries and silos may be built to any desired height and filled by means of elevators run by gasoline. Is there any limit to which this engine may not go in relieving the farmer, his wife, and their helpers from wearying muscular effort and drudgery? ²

Effects of the depression.—The movement toward mechanization and large-scale farming ran into difficulties during the depression which began in 1930. The cumulative effects of power machinery and improved methods resulted in keeping up agricultural surpluses, in spite of exhortations to the farmers to reduce production. But this was something which the individual farmer could not afford to do; to be effective it must be of national scope.

At the same time that supply was increasing demand was falling off. After the war the exports of practically all agricultural products declined and by 1932 were far below even the pre-war level. Domestic demand also fell off as the depression lowered the purchasing power of city workers, and the shutting-down of factories reduced the purchases of cotton and other agricultural raw materials.

With the closing of factories and the increase in unemployment there began a reverse movement of the population from the cities to the country. Professor Hibbard estimated that

² A. H. Sanford, *The Story of Agriculture in the United States*, p. 259.

between 1930 and 1934 probably 3,000,000 persons "have gone back, not exactly to the land, but to the beds and boards of their relatives and friends." Because of the conditions which caused it, such a movement cannot be held to indicate a permanent trend back to the farm, but it illustrates the difficulties and perplexities which arise out of an unbalanced economic situation in time of depression.

Farm tenancy.—The proportion of farms operated by tenants, which amounted to 35 per cent, in 1900, continued to increase until in 1910 they constituted 37 per cent, and 38 per cent in 1920. During the World War there was a slackening in the rate of increase in tenant farming, caused on the one hand by high prices obtained for farm products and the consequent profits accruing from operation by the owner, and on the other hand by the withdrawal of labor into industry and into the army. The next decade, however, saw a strong movement in the direction of tenancy and by 1930 the proportion of tenant farms was 42 per cent. From all evidence available it seems clear that the depression has still further increased the proportion of tenants.

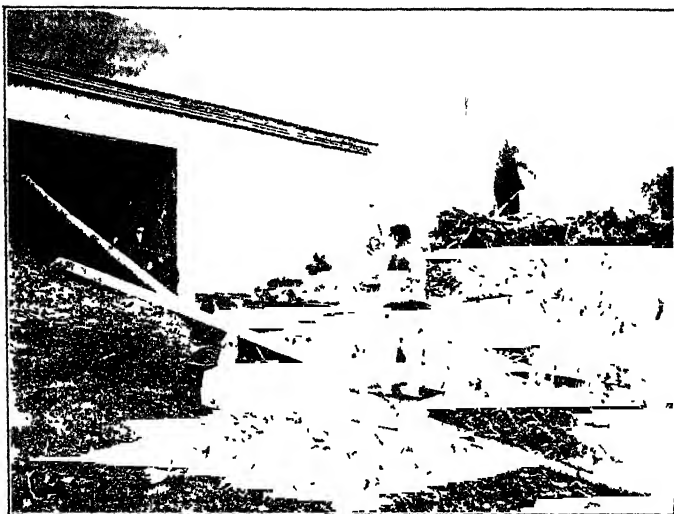
The increasing use of power machines, the larger-sized unit that could be operated profitably by one family, and the cost of the necessary equipment in those parts of the country where agricultural machinery was largely used, all required a larger capital investment on the part of the owner. Thus the average value of all property per farm rose from \$3563 in 1900 to \$9103 in 1930. This made it more difficult for a young man to climb the agricultural ladder and become an owner. Moreover, it was not at all certain that it would be profitable for a young man to buy a farm and borrow the money by placing a mortgage on it. One of the motivating forces that has led farmers in the United States to invest in land has been the likelihood that it would increase in value. Under present conditions the future course of farm land prices is very uncertain and this factor no longer has much weight. Finally, there seems to have been a change on the part of the farmers themselves. Instead of saving to buy land, they now prefer to raise their standards of living and

to spend their incomes on immediate consumption goods, such as automobiles, radios, washing machines, and forms of entertainment.

Tenancy is found in greatest degree in the rich agricultural districts where the price of land is highest and where consequently it is difficult for a young man to purchase land of his own. It is also found to have resulted in those sections where specialization in cereal production has proceeded furthest, that is where a standardized routine agriculture is practiced ; on the other hand, where diversified farming is carried on, ownership is more general. Owners tend to be more progressive, while tenants follow the beaten track. Whether tenancy is to persist as a permanent phenomenon will probably depend upon the character of agriculture which the future may develop in the United States.

Cereal production.—The production of cereals is the most important branch of agriculture in the United States, representing more than half the total value of the crops raised and requiring the use of nearly half of all the improved farm land. There are eight cereal crops which are grown in considerable quantities, and which are, in the order of their importance, corn, wheat, oats, barley, rye, buckwheat, rice, and Kafir corn. In the following table will be found the statistics of the production of the first seven since 1910 :

PRODUCTION OF CEREALS, 1910-1935				
KIND	1910	1920	1930	1935
	(In thousands of bushels)			
Corn	2,252,190	3,345,833	2,130,752	2,202,852
Wheat	683,379	945,403	860,649	603,199
Oats	1,007,143	1,055,183	992,347	1,195,435
Barley	173,344	122,025	263,590	292,249
Rye	29,520	75,992	34,303	57,936
Buckwheat	14,849	12,690	8,359	8,234
Rice	21,839	35,331	33,469	38,452
Production of seven cereals	4,182,264	5,592,457	4,263,869	4,398,357



CORN HUSKER

When dry the corn must be husked, that is, the covering must be stripped from the ear. The task is enormous, and numerous machines have been invented to do the work, but until recently they have not proved satisfactory, and most of the husking is still done by hand.

Of the separate crops, corn is by far the most important, representing 75 per cent of the total world production and 50 per cent of all the cereals in the United States in 1935. Most of the corn (75 per cent) is fed to stock throughout the corn-belt and comes to market in the form of beef and pork, dairy products, and poultry. In the production of wheat the United States also ranks first. Although worth about one-half as much as the corn crop, it attracts more general attention because of its importance as an export crop, many European nations depending upon the United States to supply their deficits. But wheat, like beef, is to a certain extent a frontier crop, since it stands transportation well and can be grown profitably by extensive methods. The center of wheat production has moved steadily westward in the United States, and may soon pass beyond our national boundary to the new wheat lands in Canada. With the exception of oats,

the other cereals are of minor importance, though rice is steadily gaining in significance, as a result of new methods of cultivation. The recent expansion in the production of barley is due to the repeal of prohibition.

Cotton.— The production of cotton has steadily increased, from 10,649,000 bales in 1910 to 11,376,000 in 1920, and to 14,574,000 in 1930. As an export product its importance is still more marked, making up, as it does, about one-quarter of the total exports. Notwithstanding vigorous efforts on the part of foreign producers to make themselves economically independent of the United States in the production of cotton, this country produces more than fifty per cent of the cotton supply of the world. A needed improvement in the process of marketing cotton is now being made by the erection of more adequate warehouses for storing cotton ; it is estimated that Southern farmers now lose \$50,000,000 a year in the deterioration of their cotton through exposure to the weather. There have been invented various labor-saving implements in the production of cotton, of which the most important are the cottonseed planter, the fertilizer distributor, the cotton-stalk cutter, and various kinds of plows and harrows. Vigorous efforts are also being made to perfect cotton-picking machinery. A definite limit is now placed upon the production of cotton by the necessity of picking it by hand ; in other words, a man can cultivate more cotton than he can pick. If the pneumatic picking machine could be perfected so as to supplant hand labor in this operation it would effect a revolution in Southern agriculture nearly as momentous as that which followed the introduction of the cotton-gin. The effect upon the labor now used in the cotton-fields would be no less striking.

The last quarter of a century has seen the most remarkable growth in the cottonseed industry, and in the utilization of the stalks and roots, all of which had previously been regarded as waste products to be disposed of at considerable expense. Cottonseed oil, obtained from the seeds, is used in making salad oils, oleomargarine, lard, and soap, the meal

is used as a fertilizer or fed to the stock, and the hulls and stalks are used for the same purpose or as fuel or in the manufacture of paper ; in 1930 Southern farmers realized \$210,000,000 from the sale of cottonseed alone.

A peculiar feature of cotton production is that it is largely in the hands of tenant farmers, about two-thirds of the crop being produced by them ; about half of the cotton farms are in the hands of Negroes. The farms in the hands of Negroes are generally small patches sufficient to raise a couple of bales of cotton or used for truck farming. The more recent tendency seems to be to combine small farms into a plantation and small plantations into larger plantations. Frequently these are under the control of corporations which conduct both mercantile and agricultural operations. In spite of the fact that the Negroes are in the most fertile sections, the average yield of cotton per acre for the Negro owner is less than for the white owner, who is generally situated on the poorer soils. The Negro has shown the greatest efficiency in those sections where he has been brought most closely under the supervision of the whites. But the improvement of Southern agriculture, diversification of crops, use of fertilizers and improved machinery are in general confined to the so-called white counties ; the improvements in the means of transportation especially has stimulated this movement.

The cotton boll weevil.—Southern agriculture has been profoundly affected by the depredations of the boll weevil, and has undergone a veritable revolution in the past twenty years. The beetle migrated from Mexico into Texas in 1892, and since that time has spread over practically the entire cotton-growing area of the United States. The female weevil lays its eggs in the green bolls, on which the grubs later feed, so the bolls either fall off or fail to develop. The destructiveness of the boll weevil and the cost and difficulty of combating it have forced the Southern farmer in the infested regions to give up or reduce the planting of cotton and to diversify his crops. This has been so beneficial that

the effects of the boll weevil cannot be said to have been altogether bad ; indeed, the town of Enterprise, Alabama, erected a monument to the boll weevil because it compelled the abandonment of the one-crop system. Production of food for home consumption has greatly increased, and the "cow, hog, and hen program," urged by the Southern State experiment stations, is being more generally adopted.

Livestock.— The raising of cattle for food purposes is the most important branch of the livestock industry ; the annual meat production of the United States in 1930 was about 6,000,000,000 pounds. The raising of livestock is the predominant industry in the semi-arid States of the West, as Montana, Wyoming, Colorado, and Texas. Of recent years there has been a movement of livestock from the ranges of the Far West to smaller farms (under 500 acres) in States immediately west of the Mississippi. Here they are raised in small herds, and more attention is given to breeding. With the development of stall feeding the concentrated foods, such as corn, have come to be of great importance and they are fed to the cattle where they are grown. It is not improbable, however, that the near future will see a development of the livestock industry in the East and the South as a result of the growing of root crops, alfalfa and other special forage crops, and of breeding varieties of corn, clover, and other crops especially adapted to those sections.

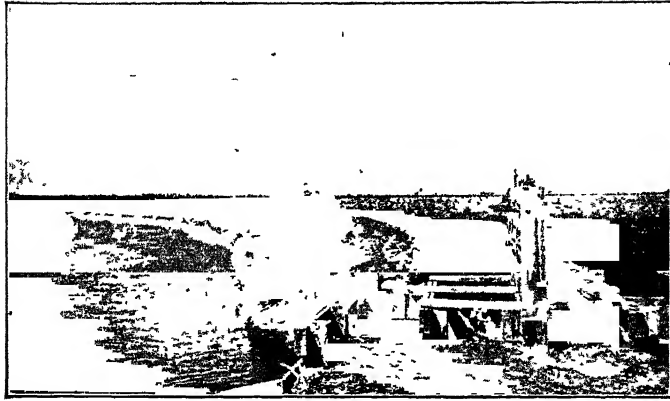
Scarcely second in importance is the production of pork and hog products, of which we contribute about one-half of the world's supply. It is no mere coincidence that the twelve States of the North-Central division, which grow almost three-quarters of the corn, should also produce nearly two-thirds of the hogs, for corn is the chief food used in fattening the animals for market. There is a strong concentration of this industry in Iowa, Nebraska, Illinois, Missouri, and Indiana. It is in these States that the great slaughter-houses and meat-packing establishments are found, notably in the cities of Chicago, Kansas City, and Omaha. Improvements in refrigeration and transportation have

caused a great centralization of these industries in a few cities and permitted the growth of an immense export trade in meat products, amounting to about 340,000,000 pounds in 1930.

The dairy industry, which is quite distinct from the live-stock industry, is confined chiefly to the corn-belt and the Eastern States. This industry has been considerably stimulated and transformed by recent developments. Chief among these should be named the rise of great markets in our large cities, for which it is necessary to furnish a regular and wholesome supply ; trains carrying only milk are now run to all the principal cities, often from great distances, and methods of sterilizing, bottling, and refrigerating milk have been developed. The breeding of cows for milk production has yielded wonderful results, and the perfecting of the silo, whereby good feed is provided for the animals during the winter, has increased the winter supply of milk.

The poultry business has been almost revolutionized by the introduction of the incubator and the brooder, which have greatly increased the production, and by the application of cold storage to both poultry and eggs, thereby equalizing their marketing and consumption throughout the year. New demands for eggs have also been created in certain manufacturing processes, such as photography, the manufacture of dyes, and the printing of calico.

Irrigation and reclamation.— There remain of the public domain in the United States about 842,000,000 acres, practically all of which is in the arid zone. With the expansion of the population and the taking up of all the fertile public lands, the problem of reclaiming the arid plains of the Western States has begun to attract attention. Nearly two-fifths of the territory of the United States has an annual rainfall of less than twenty inches, and is thereby reduced to a condition of sterility, except for grazing purposes, unless it can be artificially provided with the necessary moisture. Much of this land is exceedingly fertile, but cannot be cultivated except where it is brought under irrigation. The arid belt



IRRIGATION DITCHES

At the upper end of each ditch it is usual to construct some device by which the amount of water entering from the river can be regulated and its fair share distributed to each ditch. The effect of irrigation has been marvelous in reclaiming and developing the arid and semi-arid sections of the country.

includes the eight States of Montana, Idaho, Wyoming, Colorado, Utah, Nevada, Arizona, and New Mexico, and parts of several other adjoining States.

Although irrigation had been practiced in America from time immemorial by the Indians, only a few hundred acres were being irrigated when, in 1847, the Mormons began their experiments in Utah. By 1870 there may have been 20,000 acres under irrigation in the United States, but the next decade was one of rapid construction of small ditches by individuals and associations of farmers, and by 1880 the irrigated territory had grown to not less than 1,000,000 acres. After this the number increased rapidly, to 3,600,000 acres in 1890, to 14,433,000 in 1910, and to 19,192,000 in 1920. At this date the great over-expansion of agriculture gave a check to the movement, and in 1930 the number of acres irrigated had increased by only 356 acres, to 19,548,000. It is probable that the future will see a decline from this high point, for the limited supplies of available water, the great expense of the system, and the abundance of other land are

obstacles to its financial success. More important in the improvement of agriculture are education and more economical methods of marketing.

Farm relief.— The increased productivity of agriculture through mechanization, the loss of foreign markets, and the depression at home resulted in a disastrous fall in prices which made the position of the farmer an increasingly difficult one. Efforts had been made as early as 1913 to extend aid by providing for easier credit facilities through the establishment of Federal land banks for long-term mortgages and of intermediate credit banks for short-term loans. While these were helpful in meeting a particular need they did not solve the fundamental problem of low prices.

A second step was taken in 1929 by the organization of the Federal Farm Board for the purpose of stabilizing prices. Acting through subordinate agencies the Board bought large quantities of wheat and cotton and took them off the market. It was unable to check the slump in prices, however, and was later compelled to dispose of these holdings at a serious loss to the government.

The third method adopted was that of reducing production, and thereby attempting to bring demand and supply into equilibrium at a profitable level of prices. The Emergency Farm Relief Act of May 12, 1933, put into effect a domestic allotment plan of control for seven "basic agricultural commodities," namely, wheat, corn, cotton, hogs, dairy products, tobacco, and rice, to which other products were added later. To administer the act the Agricultural Adjustment Administration (AAA) was set up. Those farmers who agreed to cut their acreage according to a scale arranged by the Department of Agriculture were paid sums proportionate to the estimated profits from the crops or animals not grown. It was hoped, by reducing supply, to ensure higher prices to the farmers for the commodities which they brought to market.

It is difficult to pass judgment upon this plan, for at the end of a year and a half of trial the experiment was brought

to an end by a decision of the Supreme Court on January 6, 1936, invalidating the AAA. Congress, however, did not give up this method of solving the crop problem and in place of the invalidated AAA it passed the Soil Conservation and Domestic Allotment Act of February 29, 1936. Under this act Federal payments are made, until January, 1938, directly to co-operating farmers as rewards for their voluntary contributions toward conservation of soil resources. After 1938 payments will be made only to States which adopt appropriate legislation and a conservation program acceptable to the Secretary of Agriculture. The essential policy of the earlier act has thus been continued, though under another name.

Agricultural education.— An important step in the reorganization of American agriculture was the grant of Federal support to the agricultural experiment stations in 1887. There had been State stations before this, but now they were co-ordinated, their number increased, and their activities enlarged. By them science has been applied to agricultural problems, experiments have been carried on, and the results disseminated among the farmers. Their influence is already far-reaching, and will become increasingly important. It is estimated that the North Dakota station added to the wealth of that State ten million dollars a year for a decade by the better development of cereals. The Federal government is appropriating about one and one-half millions of dollars a year for this work, and the States somewhat more. Most of these stations are situated at the agricultural colleges, which are to be found in every State and Territory in the Union. The number of students in these institutions is growing, and an increasing number of their graduates is going back to the farms equipped with a knowledge of scientific agriculture. This is taught as a science as well as an art, and the student is given a general education in farming methods. Agricultural education is also being carried down into the secondary schools ; and with the passage in 1917 of the Smith-Hughes Act, granting Federal funds to high schools



TESTS MADE BY THE BUREAU OF STANDARDS

for instruction in agriculture, we may expect to see a great expansion along these lines. Lately, railroads, millers, grain dealers, and others interested in the development of agriculture have co-operated to bring the instruction of the schools and colleges as near to the farmer as possible by means of special lectures, with moving laboratories.

Another important kind of work along these lines has been carried on by the Department of Agriculture. The bureau of plant industry has men searching for new plants in every quarter of the globe, and determining whether they are practical and desirable for introduction into the United States. During the single year 1904 nearly 1500 new kinds of seeds and plants were introduced into this country, including species especially adapted to the arid regions. Other bureaus, which are performing equally valuable service, but which can only be mentioned, are those of forestry, weather, entomology, animal industry, chemistry, and the more recent bureaus of agricultural economics and of markets. The results of the Department's work are brought to the farmers through

the experiment stations, by its agents, by county farm advisors, and by various publications. As the application of the principles of experimental science to agriculture becomes more systematic and more general, no profession will require a more thorough scientific training than this.

Co-operative marketing.—An equally significant movement has taken place recently along the lines, not of governmental encouragement, but of self-help, and has led to agricultural co-operation. In manufacturing and commercial enterprises there has long been a tendency toward closer organization, but farming has been slow to avail itself of this principle. Now, however, agricultural co-operative organizations have been established for buying farm supplies, for marketing farm products, and for obtaining credit. The most noteworthy successes have been achieved in the selling of fruit, grain, milk, and some other commodities, of which the California Fruit Growers' Exchange may be cited as an example, and especially in the establishment of co-operative elevator companies, which are now to be found in the Central and Northwestern States. In some years, it is estimated, these associations have done a business of \$2,500,000,000 or nearly one-fourth of the annual sales of farm produce. They have brought about considerable improvement in standardization, processing, transportation, market distribution, and merchandising. By means of these organizations the farmers aim to maintain more stable prices by releasing their stocks gradually instead of flooding the markets immediately after harvest.

Conclusion.—The objective of American agriculture has been, during most of our history, simply to bring more land under cultivation and to produce more. The public domain was got rid of as rapidly as possible, and most of the arable land was put into the hands of farmers together with much that was suitable only for forestry or grazing, and some that was not good even for such use. It seems clear today that this process went on too rapidly, with consequences disastrous to the farmers and to the nation. That such a continuous ex-

pansion of production could take place at all was made possible by the growing European market, which absorbed the agricultural surplus above our normal domestic requirements. The present distress of American farmers is traceable largely to the fluctuations of this European demand, expanding enormously during the World War and since falling off until today the foreign markets are almost closed to our agricultural products.

Recently a new agricultural policy has been set up which looks to a better economic balance between the agricultural output and the demand for these products, and also a better relation between agriculture and manufacturing. The purpose of this "new deal" is to bring about an equilibrium in which a more perfect adjustment may be obtained among these different interests. But such a policy involves a reorganization of American agriculture which creates new problems. The individualistic habits and modes of thought of the American farmer go back to the days of subsistence farming. But these are largely inconsistent with commercial agriculture, to which so great a shift has taken place in the twentieth century. The farmer must sell his produce for cash, not only to pay his taxes and buy his farm machinery and clothing, but with his higher standard of living he must purchase also automobiles, gasoline, washing machines, radios, household equipment, and entertainment. This commercialism requires larger and larger money incomes, and calls for further adjustments in types and methods of production and in land utilization.

SUGGESTIVE TOPICS AND QUESTIONS

1. How long would it have taken to harvest the crops of 1930 with the hand implements in use 100 years before? [Thirteenth Annual Report of United States Bureau of Labor.]
2. In his report for 1901 the Secretary of Agriculture wrote: "We import annually millions of dollars' worth of tropical products that could be grown in the United States." Should the tariff be extended so as to stimulate the growth of these products?

3. If the present increase in the consumption of bread continues, is there danger of a wheat famine in the future? [W. Crookes, *The Wheat Problem*, chap. 1.]

4. Why are exports of corn so small as compared with wheat?

5. Describe the ravages of the cotton boll weevil, and attempts to exterminate it. [*Agriculture Year-book*, 1906, pp. 313-324.]

6. Why do not other countries raise their own cotton instead of importing it from the United States?

7. In 1905 some of the cotton planters agreed to burn part of their crop in order to keep the price up. Was this economically desirable?

8. Describe the production of beet sugar in the United States. Is it likely to increase? [Baker in *Review of Reviews*, XXIII, 324; Lighton in *Cosmopolitan*, XXXV, 181; Taussig in *Quarterly Journal of Economics*, Feb., 1912.]

9. Describe one of the bonanza farms of the West. [Bindloss in *Living Age*, CCXXII, 498; Carver in *World's Work*, VII, 4332.]

10. What are the most important agricultural products raised near your home? Do you think more profitable ones could be introduced?

11. Is the livestock industry carried on near cities? The dairy industry? Why? [S. Trotter, *Geography of Commerce*, 114; C. C. Adams, *Commercial Geography*, 77-79.]

12. Describe the methods of irrigation. [Twelfth Census (1900), VI, 801-880; E. Mead, *Irrigation Institutions*; F. S. Newell, *Irrigation*.]

13. Would it be possible to obtain a free grant of land today? How would you go about it?

14. Describe scientific forestry, and tell how far it has been introduced into the United States. [*Reps. U. S. Dept. of Agric*, especially 1860, 1865, 1870, 1875, 1886; *Publ. U. S. Bur. of Forestry*, Sen. Doc., 54th Cong., 1 sess., no. 84.]

15. Describe the threatened extinction of the seal and the success of efforts to preserve them. Are any fish in American waters threatened with extinction, and why? [J. B. Henderson, *American Diplomatic Questions*, 10-15; Jordan in *International*, VII, 222.]

16. Are large or small farms better? [A. Marshall, *Economics of Industry*, 176-181; C. Gide, *Political Economy*, 154-157; H. Fawcett, *Manual of Political Economy*, 67-70.]

17. Are the people engaged in farming employed in more productive occupations than those engaged in transportation or commerce? [C. J. Bullock, *Introduction*, 116; C. Gide, *Principles of Political Economy* (2d ed.), 75-80.]

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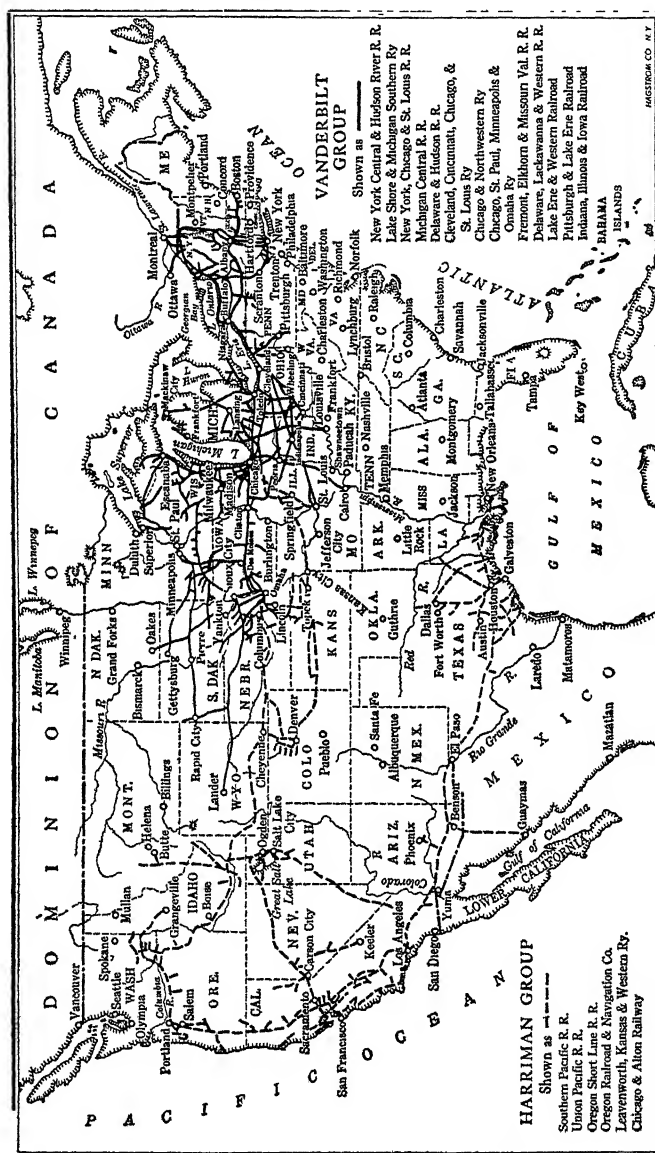
CHAPTER XXXI

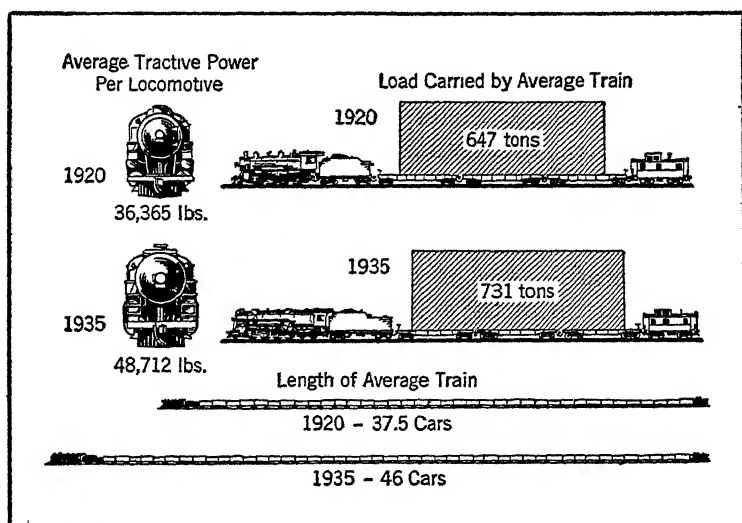
TRANSPORTATION AND COMMUNICATION

By 1914 the country was fairly well supplied with railroad facilities. The urgent problem was no longer how to get needed transportation, but rather the proper relation between the railroads and the people on the one hand, and between the railroads and the State on the other. The questions of rates and regulation have accordingly been the ones most to the front, except during the war when that of physical facilities was again a pressing problem.

Railroad building.—During the World War there was an almost complete cessation of new building as the free capital of the country was diverted into war channels ; and since that event the earnings of the railroads have been insufficient to warrant additions to their lines. In 1936 the railroad mileage was only 241,822, or an actual decrease of 12,000 miles since 1916 ; a greater mileage was abandoned than constructed during the war period. Most of the new building during the twentieth century was in the South and Southwest, which were least well supplied with railroad facilities at the beginning of the period. The value of the railroads of the United States was tentatively set by the Interstate Commerce Commission in 1920 at \$18,900,000,000, which was almost as much as the capital invested in manufactures and about half the value of the farms and farm property.

The development of track and equipment has kept pace with the growth in mileage. Rails have become steadily longer and heavier, until today 60-foot rails weighing 2000 pounds are not uncommon. The growing cost of wooden ties has led some railroads to experiment with steel ties, though these have not yet proved successful. Locomotives





RAILROAD FACTS, 1920 AND 1935 *

have been made more powerful in order to handle the increasing traffic, and have steadily become larger and heavier ; one of the recent types weighs more than 760,000 pounds. The construction of all-steel passenger and freight cars has permitted much greater speed and has at the same time decreased the danger of travel. The capacity of the typical freight car has also been greatly enlarged, and in other respects the railroad system has been improved to meet the constantly growing demands of our internal commerce.

Railroads during the World War.—Even before the World War the railroads of the country had fallen into financial difficulties. Federal and State legislation had been passed to compel reductions of railroad rates ; but now it was discovered that the new rates were insufficient to pay expenses. In 1910 and again in 1913 the railroads asked to have their rates increased, but the Interstate Commerce Commission refused the larger part of their demands. When

* Information from *A Yearbook of Railroad Information*, 1935 ed. Published by Committee on Public Relations of the Eastern Railroads.

the war broke out in 1914 the railroads were at a low ebb, with depleted resources and insufficient equipment. By October 1, 1915, nearly 42,000 miles of railroad, or one sixth of all in the United States, were in the hands of receivers. During the next three years, during which the war threw a great increase of traffic upon them, they had increasing difficulty in meeting the demands of the shippers.

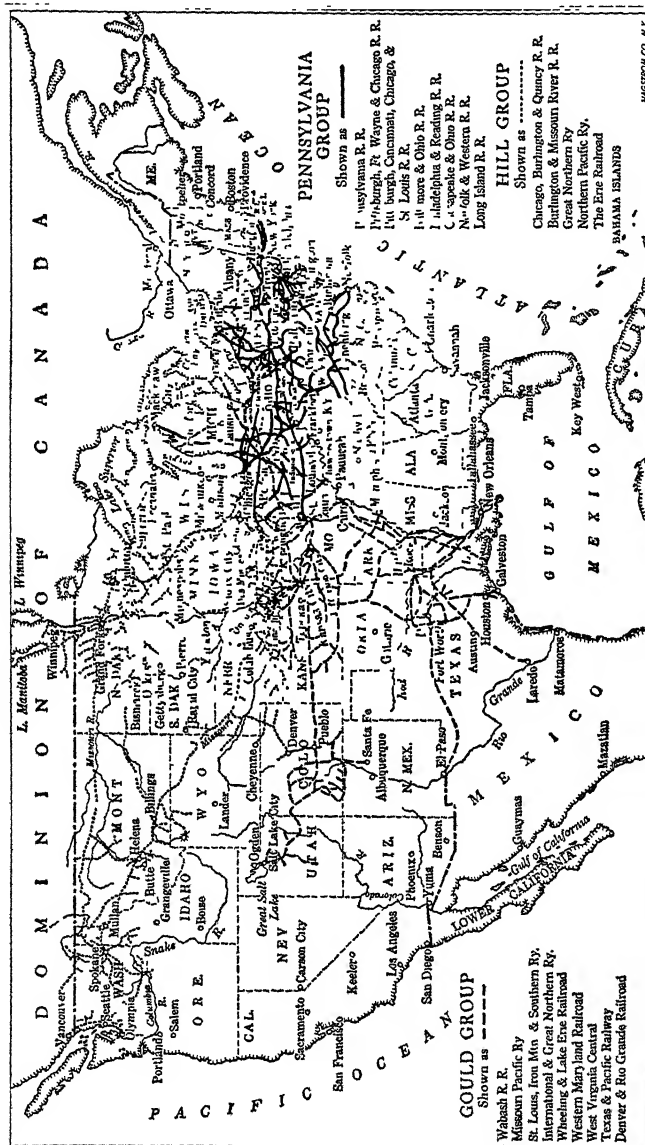
When the United States entered the war some form of unified operation was necessary, and this was obtained by the management of the roads as a unit during the period of the war. By a proclamation of December 26, 1917, the President authorized Federal control and placed the railroads under a director-general, who administered them until February 29, 1920. At that time Federal administration ceased and the railroads were handed back to private ownership and management. Two objects had been pursued during the period of Federal administration : first, that of operating the roads as a unit in order to make them contribute to winning the war ; and second, to increase efficiency and reduce costs by co-operation among the railroads. The war period of the Federal administration had pointed some valuable lessons both to the owners and to Congress, and the terms upon which the railroads were to be managed in the future were different from those which had prevailed before. These conditions were laid down in the Transportation Act of 1920, which to some extent reversed previous railroad policy.

The Transportation Act of 1920.—The idea that competition must be enforced between railroads was abandoned in this act. Pooling, forbidden by the original act in 1887, was now legalized under the supervision of the Interstate Commerce Commission. Plans were also made for the consolidation of the railroads of the country into a limited number of competitive systems. Power was given to the Commission to regulate railroad capitalization, car service, and the division of the joint rates. But the most important provisions of the Act were those dealing with rates and with

labor. The Commission was given the power to fix both maximum and minimum rates ; in general these must be "fair." If the net operating income of any railroad should exceed 6 per cent, half the excess was to constitute a contingent fund to be loaned to carriers for the purpose of retiring maturing obligations or to purchase equipment. In a word, the purpose was to insure the railroads a just return, but to prevent any road from obtaining an excessive one. In 1933 the second provision, the so-called "Recapture Clause," was repealed.

The Transportation Act of 1920 also set up elaborate arbitration regulations for the settlement of labor disputes, but these did not work well and were replaced by other acts in 1926 and 1934. It will therefore be sufficient to describe the existing arrangements. Provision is first of all made for conferences between the two sides. If an agreement can not be reached, then the disputes are referred to a National Railroad Adjustment Board of thirty-six members, half elected by the carriers and half by the employees. The Board is divided into four divisions, each with jurisdiction over certain classes of employees. If a division is unable to reach a decision a referee is selected, whose decision is final. A third agency to settle disputes is a National Mediation Board, whose function is to work out a compromise acceptable to both parties. If a settlement can not be effected in any of these ways, an arbitration board may be set up for each particular dispute, whose award is binding. And finally, if all these methods fail, the President is authorized to create an emergency board to investigate the dispute and report its findings to him. Strikes are not forbidden, nor is compulsory arbitration provided, but every effort is made to obtain the peaceful settlement of disputes.

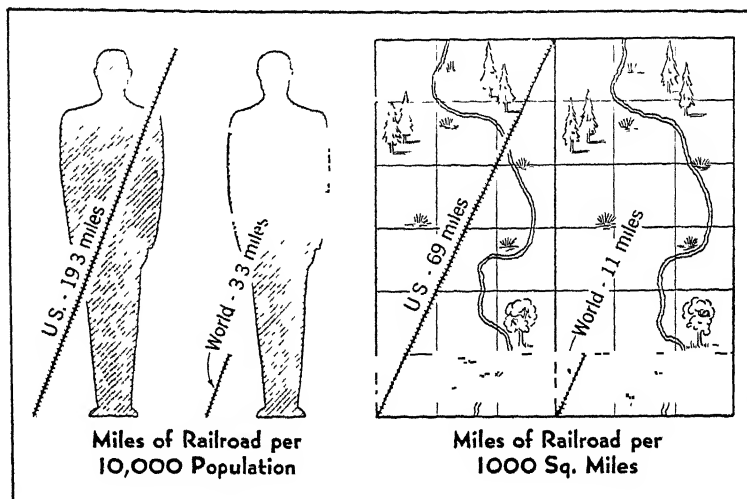
Control by the States.— Under our dual system of government the necessary control may be exercised either by the States or by the Federal government. The early attempts of the State governments have already been described. In general these have attempted to secure the



needed regulation by establishing railroad commissions. In the South and West these have usually been mandatory, that is, they have been clothed with power to establish and enforce maximum rates. In the Eastern and the Central States, on the other hand, the rule has been the creation of commissions with supervisory powers merely, whose duty it was to investigate and make public all charges against the railways. With the growth of the great railway systems the State governments have become clearly inadequate to cope with the problems involved, and, while the State commissions have done valuable service, broader powers of control were seen to be necessary. These could be exercised only by the Federal government.

After the United States entered the war, the Railroad Administration proceeded with little regard to the rights of State commissions. In its efforts to obtain unified operation and efficient service, it centralized control to a hitherto unheard-of degree. After the armistice, however, the State commissions insisted upon their rights and the question of final authority came before the Supreme Court, which in 1919 upheld the authority of the Federal Administration as a war power. Finally the Transportation Act of 1920 confirmed the superior authority of the Interstate Commerce Commission over the State commissions as a permanent policy. There has been a gradual tightening of national control upon the entire transportation system until today the States have little effective rate-making authority and in other respects are subordinated to Federal authority. This is a process which has been going on for a long time and its settlement in favor of national control over national railroad systems was apparently inevitable.

Railroad prosperity and depression.—After their return to private operation, the railroads enjoyed a long period of prosperity, sharing in the industrial expansion of the times. During the war the Federal government had expended large sums in improvements on the railroads, and the roads themselves now invested \$8,000,000,000 additional in new facili-



RAILROAD FACTS FOR 1938

ties : terminal facilities were improved ; curves were straightened and grades eliminated ; unprofitable lines were abandoned and losing trains were discontinued ; and passenger and freight schedules were speeded up.

The depression, beginning in 1930, affected the railroads adversely along with other industries, and as their revenues fell off they began to clamor for relief. They claimed that they were unfairly treated by the competition of government-subsidized river barges and of busses and trucks which operated on State-supported highways. There was some force in these arguments, but the Interstate Commerce Commission refused the roads permission to raise their rates. Congress thus apparently took the view that the railroads should reduce their own costs of operation and improve their efficiency before asking for relief. This was severe treatment, but the justice of this position was proved by the success of the railroads in reducing their operating costs under the pressure of necessity. Between 1930 and 1935, inclusive, the railroads of the country cut their operating

costs over \$10,000,000,000 and were able to earn profits in spite of — or perhaps because of — further reductions in rates. The savings were effected mainly by economies in the use of equipment and by the adoption of methods of mass production.

Motor traffic and improved roads.— By 1914 the experimental stage in the making of automobiles had been passed, and manufacturers, led by Henry Ford, were devoting their efforts to the production of an inexpensive car which small purchasers could afford. Costs of production were steadily reduced and new strata of consumer demand were tapped, resulting in a rapidly expanding output. The proportion of automobiles costing under \$1000 increased from 44 per cent of all in 1912 to 92 per cent in 1932. The cheap car of the later period was, moreover, a very much better article than the earlier one. In 1930 there were registered 26,545,000 automobiles (maximum ever registered), of which about seven-eighths were passenger cars and the rest trucks or busses; this was 76 per cent of the world registration. The proportion of cars to population is thus about one car to every five persons.

The effects of this popular, convenient, and mobile system of transportation have been revolutionary. It has brought the country districts into close touch with the cities and towns, and has done much to break down rural isolation. It is said that there are in the United States today 45,000 communities which have no mode of transportation other than motor vehicles. Automobiles are today a necessity to the farmers, of whom practically a third are car-owners. Motor busses have cut seriously into the passenger business of electric railways and steam railroads, while the motor truck is threatening to steal much of the short-haul freight business. It is estimated that 75 per cent of the less-than-car-load traffic which is moved into and out of Chicago within a 60-mile radius is carried by truck. Most of this traffic is new business and has not merely been diverted from the older agencies of transportation.

Another result of the general use of the automobile has been the revival of an interest in good roads similar to that which attended the introduction of coaching and led to the building of the early turnpikes. About 1890 a "good roads" movement was initiated, which received a great impetus as the number of automobiles increased. Beginning with New Jersey, practically every State has built and is extending a system of hard roads across the country ; to this purpose are applied revenues amounting in 1936 to over \$600,000,000, derived from automobile licenses and the practically universal gasoline tax. A great impetus was given to the movement by the policy adopted in 1916, of matching the money spent for this purpose by any State with an equal sum out of the Federal Treasury. Between July 1, 1916, and January 1, 1922, a total of 108,450 miles of road had been built under this plan. Federal appropriations for internal improvements were declared unconstitutional by Andrew Jackson when he vetoed the Maysville Road bill, appropriating Federal money for a road in Kentucky, but today, in the face of an urgent demand for good roads, the Constitution is found flexible enough to permit such appropriations. Today there is a network of surfaced roads crossing the country in every direction and amounting to about 700,000 miles ; this is more than double the total railroad mileage. The neglect of a century has been more than made good in a generation.

Air transportation.—The airplane in the United States may be said to date from 1903 when the Wright brothers succeeded in remaining in the air with their heavier-than-air flying machines. The development of airplanes was greatly hastened by their use during the World War, and since that time equally striking progress has been made in their utilization for commercial purposes. The establishment of regular air-mail service on transcontinental routes by the Federal government in 1919 further stimulated the development of private air transport companies, and today there are some 20,000 licensed airplane pilots in the United

States. To aid air navigation the Federal government has established a system of airways, or marked routes equipped with beacon lights, radio markers, and other devices, covering some 50,000 miles in 1934. Although we lag behind Europe, airplanes are now generally used for the carriage of mail, and to a less degree for passenger and express service. In 1937 scheduled domestic air lines in the United States carried over 1,000,000 passengers and 7,464,000 pounds of express.

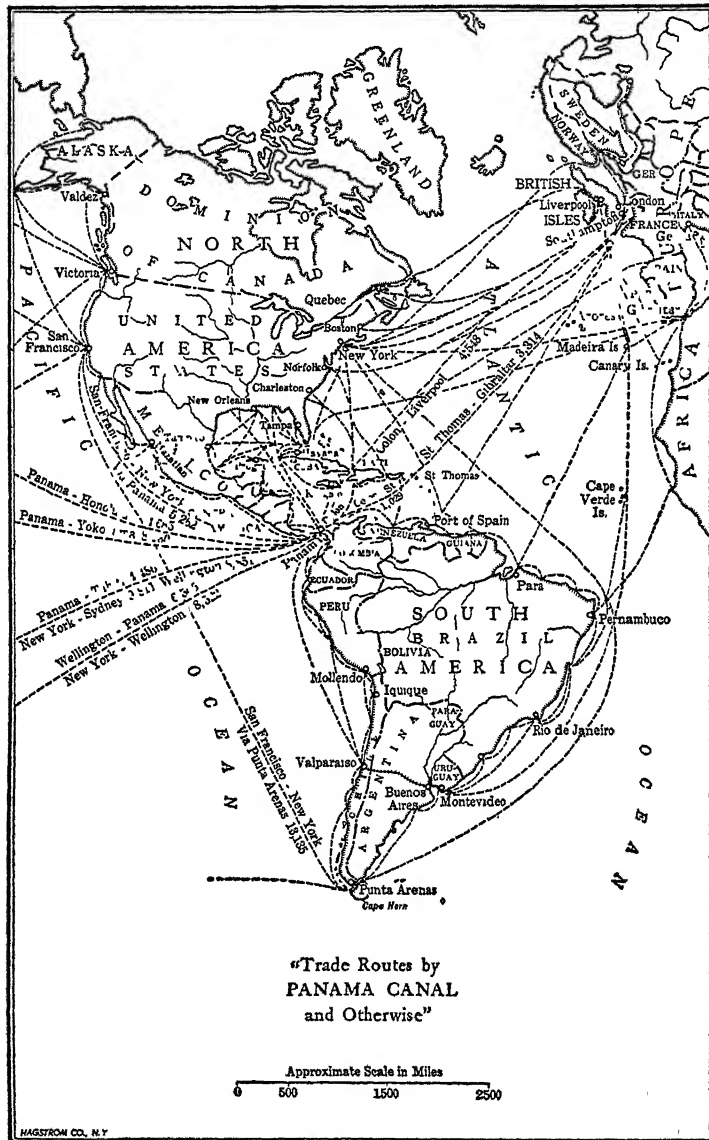
Inland water transportation. Rivers.—The river trade, which was thought to be almost dead, has experienced a considerable revival since 1914. Before that date the packet-boats had almost disappeared from the rivers, the barge trade was just about holding its own, and only the rafting of logs was increasing and most of these were floated down the Pacific coast rivers. Explanations of this decline were to be found in the absence of co-operation and even hostility of the railroads, but even more in the lack of modern equipment and facilities for handling traffic on the rivers. The transportation requirements of the war period, however, put a burden on the railroads which they could not adequately meet, so resort was had again to water transportation.

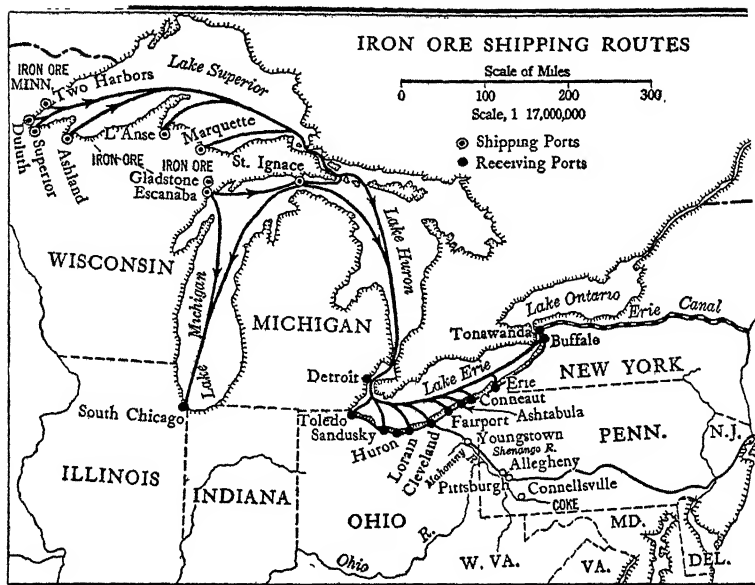
Barge building was undertaken by private capital and also by the Federal government, and soon strings of modern 2000-ton barges towed by powerful tugs made their appearance on the Ohio, the lower Mississippi, and the Warrior rivers. In 1924 the government-owned Inland Waterways Corporation was created to take over and operate the Federal barges, which until then had been under the direction of the War Department; this was enlarged in 1928. In the meantime the Transportation Act of 1920 directed the railroads to make joint rates with the barge lines and to co-operate with them. The railroads, however, looked upon this revival of the river traffic with suspicion and saw in it a threat to their own prosperity. Because of the lower costs of operation, the river traffic has grown considerably. A single tug can tow 15 to 20 barges, representing as many

freight trains. Most of the river traffic is of heavy, bulky, and low-priced articles — wheat, cotton, logs, coal and coke, petroleum, stone, and iron and steel products downstream ; and sugar, petroleum, gravel and sand, and sulphur upstream. In spite of its economies the river traffic is still relatively unimportant; in 1929, when it reached the highest point, it was less than 120,000,000 tons, which was only 2 per cent of the ton-mile traffic of the railroads.

Canals.—The canal traffic was confined almost entirely to the New York Barge (Erie) Canal, and to the coastal canals which connect the larger bays or cut through jutting peninsulas along the Atlantic and Gulf coasts. Altogether the traffic on the canals of the country in 1929 was less than 20,000,000 tons. This figure, however, excludes the St. Mary's Falls (Sault Ste. Marie) Canal, through which there passed in the same year 93,000,000 tons of freight, and the Panama Canal, which accounted for 30,000,000 tons more.

Midway between the older type of long shallow ditches and the newer short ship channels lie certain new projects, the most discussed of which is the Lakes-to-the-Gulf Deep Waterway, which would build a nine-foot channel along the line of the Chicago Sanitary Canal, the Illinois and Michigan Canal, the Illinois River, and the Mississippi River. It is urged that this would restore the Mississippi traffic, provide competition with the railroads, and establish a fairly direct water route between the upper Mississippi Valley and South America. Another projected improvement — “one of the most vital improvements to transportation on the North American continent,” in the words of President Hoover — is the St. Lawrence Ship Channel, which is planned to provide a route with a sufficient minimum depth for ocean-going vessels to sail through the St. Lawrence River and the Great Lakes, permitting ships to load at Duluth or Chicago with grain or other products for transportation to Liverpool or Hamburg or other foreign ports without stopping or transshipping their cargoes. Opposition on the part of New York, which would probably suffer a loss of Western trade,





and of the railroads, together with disagreements between the United States and Canada, have thus far blocked the realization of this project.

The traffic on the Great Lakes increased steadily to 1929, when the shipments from all lake ports were 150,000,000 tons. Ore, coal, grain, and petroleum make up most of the freight carried, which is almost entirely domestic trade.

Conclusions.—It is clear from these figures that the full capabilities of the extensive water routes in the United States are not being utilized. The estimated net total domestic water-borne commerce was 456,000,000 tons in 1929, which was about one-third of the volume of revenue-paying freight on the railroads in the same year (1,419,000,000 tons); if the ton-miles carried on the two systems are compared, the proportion is about one-fourth. Among the different agencies of transportation there has gone on and is still continuing a lively competition, resulting in readjustments of traffic so as to obtain the cheapest and most efficient

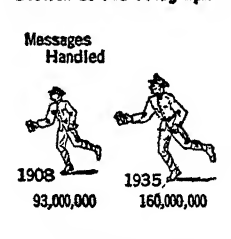
service. To the low cost but slow water routes have been assigned the heavy, bulky, and cheap goods. The electric railway and the auto trucks have captured a considerable portion of the light-weight traffic, such as milk and less than carload lots. It is estimated that motor trucks carry about ten per cent of all traffic moved by land. To these agencies should be added the pipe-lines of the country with a total length of over 1,000,000 miles. The great bulk of the freight service of the country is still rendered by the railroads in spite of the inroads of other carriers. The railroads remain, therefore, the most important and indispensable agency of transportation yet developed. We may conclude that transportation, like agriculture and industry, never stands still. It assumes new forms, performs new services, and continually advances.

Means of communication.—New and rapid means of communication are vital factors in our modern industrial society. Large enterprises can be managed from a central office which can keep in instant touch with every subordinate part. Farmers, manufacturers, and merchants may be constantly informed as to trade conditions, price changes, and other factors which might affect their actions. Thus a drought in India, too heavy rains in Argentina, a bumper crop in Canada, would all be telegraphed at once to

Chicago or Liverpool and be reflected in the price of wheat on those markets. Competition is made world-wide and local price differences tend to be eliminated. The Weather Bureau has rendered signal service to farmers and shipping interests by notifying them of anticipated changes in the weather. The modern newspaper, with its daily grist of news from all over the world, owes its growth to rapid means of communication.

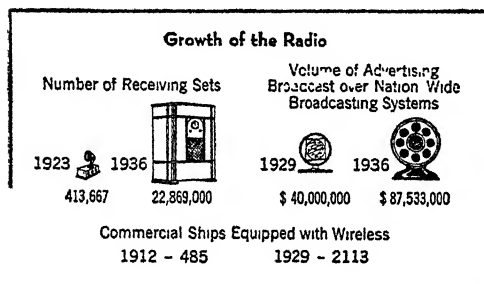
The importance of the telegraph is only faintly reflected in the number of messages sent, but this has grown astonish-

Growth of the Telegraph



ingly, from about 100,000,000 annually at the beginning of the twentieth century to over 200,000,000 today. Owing to its greater convenience the telephone is still more generally used ; from less than 8,000,000 subscribers in 1910 the number of telephones has increased to over 20,000,000 in 1930. At the latter date about 82,000,000 messages were being sent daily.

Improvements in the postal service have resulted in a much greater use of its facilities. The number of postage stamps issued increased by fifty per cent in this period, and the postal revenues doubled. The parcel post system was introduced in 1913 and has rapidly expanded ; the total



number of pieces of parcel post mail handled during 1925 (the year of maximum business) exceeded 152,000,000. This service has seriously cut into the business of the express companies and even into

the freight business of the railroads. Other improvements in the postal service include the use of motor vehicle service in the larger cities, instituted in 1914, and the air mail service, inaugurated in 1919. All of these improvements in the means of transportation and communication have aided in the distribution of books and newspapers ; in 1936 there were 12,945 newspapers in the country.

The most spectacular of recent inventions is the radio, which has outdistanced even the automobile in the rapidity of its growth. First definitely established between 1920 and 1922 as a means of public entertainment in the United States, it is estimated that by 1930 there were 12,000,000 receiving sets in use in the United States. Its importance is social as well as economic, for it is used to bring music,

lectures, news, and other forms of entertainment to radio audiences, as well as financial news and advertising. It has been the last step needed to break down the isolation of rural communities. The transmission of messages by radio from ships in distress is perhaps the most important commercial use of this latest contribution of science.

Federal control was extended to cover the field of communication by an act of June, 1934, which created a Federal Communications Commission to regulate all interstate and foreign communications by telegraph, telephone, cable, and radio. An advisory aviation board was also established, with the duty of evolving a national air policy.

SUGGESTIVE TOPICS AND QUESTIONS .

1. What are the main differences between the American and the English or European railways? Which do you think are better? [E. E. Pratt, *American Railways*, 64, 269; A. T. Hadley, chap. 12.]
2. Do any cities in the United States owe their importance to railroads?
3. What would happen if all the railroads in this country were suddenly destroyed?
4. How does our internal commerce compare with our foreign?
5. Has the opening of the Panama Canal had any effect on existing routes of commerce? On railroad rates? Was its construction opposed by any interests? [S. Trotter, *Geography of Commerce*, 377, C. C. Adams, *Commercial Geography*, 44.]
6. Compare the shipping through the "Soo" and the Suez canals: which is the larger and why?
7. Do you think the canals in the United States should be improved and enlarged? [E. R. Johnson, *Inland Waterways*; E. R. Johnson, *Ocean and Inland Water Transportation*, chaps. 24, 25.]
8. Discuss the importance of good wagon roads, and of the recent good roads movement. [N. S. Shaler, *American Highways*, chap. 13; Trotter, 139.]
9. What has made Chicago the largest railroad center in the world? [S. Trotter, 53-4, 114-5, 143; C. C. Adams, *Commercial Geography*, 152-153.]
10. Why are the following cities important — Duluth, Buffalo, Pittsburgh, Galveston? [Adams, *Commercial Geography*, 95, 152-153, 155-157; Trotter (Index).]
11. What improvements, if any, could be made in the postal service?

[J. W. Hyde, *A Hundred Years by Post* ; J. L. Cowles, *A General Freight and Passenger Post*.]

12. Should the telegraph be owned and operated by the Federal government ? [Bliss, *Encyclopedia of Social Reform*, art. Telegraph, Hubbard and Green, in *North American Review*, CXXXVII, 422-434, 521-535.]

13. Can effective competition be secured between independent railroads ? [A. T. Hadley, *Railroad Transportation*, chap. 4 ; W. C. Noyes, *American Railroad Rates*, chap. 5.]

14. Is any provision made by the railroads for indemnifying employees injured in the service ?

15. Do the electric interurban lines seriously compete with the steam railroads in your home ? Do busses ? What has been the effect ?

16. Do you think that the cost of maintaining hard roads should be borne by the users or by the taxpayers in general ?

17. Do you know of any communities in the United States today that are without steam-railroads or electric railways ? That are without automobile service ? To what extent does exchange of goods or social intercourse take place ?

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CHAPTER XXXII

COMMERCIAL EXPANSION

In no phase of our economic life have the changes been so great or so momentous as in our foreign trade, and new problems in this field are constantly arising. Is our present large excess of exports over imports a temporary or a permanent phenomenon? Is our position as a creditor nation likely to lead to larger imports, and possibly to reverse our balance of trade? Will this reduce the volume of our exports? In view of cheaper labor costs abroad, will it be possible to operate our newly acquired merchant marine in competition with foreign nations? These and many similar questions will call for answers as time goes on.

Foreign commerce before the World War.—The foreign trade of the United States expanded rapidly, but steadily, during the period from 1900 to 1914, both exports and imports increasing about \$1,000,000,000. The relations between the two sides of the international balance sheet remained about the same. There was an excess of exports over

FOREIGN TRADE OF THE UNITED STATES, 1914-1936 (IN MILLIONS OF DOLLARS)					
Fiscal Year ending June 30	Exports of merchandise	Imports of merchandise	Excess of exports over imports	Percentage which agricul- tural products formed of total exports	Percentage which manufactures formed of total exports
1914	2364.5	1893.9	470.6	48	46
1915	2768.5	1674.1	1094.4	54	43
1916	4333.4	2197.8	2135.5	36	62
1917	6290.0	2659.3	3630.6	32	66
1918	5919.7	2945.6	2974.0	39	58
1920*	8228.7	5278.4	2950.3	35	51
1925*	4989.8	4226.6	683.2	25	56
1930*	3883.2	3060.9	782.3	32	50
1936*	2454.9	2419.6	35.3	21	64

* Calendar years.

imports, a so-called favorable balance of trade, which amounted on the average to about \$450,000,000 annually. As already explained,¹ the people of the United States each year had payments to make abroad for interest on borrowed capital, expenditures of American travelers, payments to foreign shipowners for carrying our freights, and similar expenses. These amounted to between \$450,000,000 and \$500,000,000 a year, so that the excess of our merchandise exports over imports just about met our obligations. The growth of our foreign trade was keeping pace with our expansion along other lines, and was a measure of our industrial development. Our people were drawing more largely upon other countries for food-stuffs, semi-luxuries, and a greater variety of raw materials, while the growing manufacturing industries were seeking wider markets for their products.

Foreign trade during the World War.— One of the most striking effects of the war was the enormous expansion of the foreign trade of the United States. After the first temporary disorganization upon the outbreak of the war, orders began to pour in from Europe for food-stuffs, for raw materials of all kinds, and finally for actual munitions of war. This increased demand was not due to the superior excellence or cheapness of our goods, nor to the capture of foreign markets by well-planned selling methods. It was caused rather by the cessation of peace-time industry in Europe, which caused the allied belligerents to turn to this great neutral country for material assistance.

The excess of exports over imports, which had remained fairly steady for a decade, now jumped from \$470,653,000 in the year ending June 30, 1914, to \$1,094,419,000 for 1915, to \$2,135,500,000 in 1916, to \$3,630,600,000 in 1917, and to \$2,974,000,000 in 1918, or a total excess in four years of \$9,835,000,000. Not only was the volume greatly expanded, but the character of the trade also underwent a remarkable change. The expansion took place, as might be

¹ See p. 404.

expected, primarily in the group of commodities which ministered directly to war needs, such as explosives, munitions of every sort, canned goods, meat and dairy products, and similar items. As during the Napoleonic wars, when the United States had supplied the wants of the belligerents, so now the industries of this country were reorganized to meet the new situation. On the other hand our imports from the belligerent countries⁹ fell off, as their energies were absorbed more and more fully by their own immediate necessities.

With the entry of the United States itself into the war, there was a slight falling off in the figures of our foreign trade, for some of the supplies which we had formerly sold to the belligerents were now shipped with the American Expeditionary Forces, and some of the ships which formerly carried goods were now used as transports. Under the control of the War Trade Board, moreover, ships as well as exported goods to the neutral countries were strictly rationed, while imports were limited by the lack of cargo space. More than 60 per cent of all the exports went to our European Allies, but comparatively little was bought from them, since they had little to spare.

Foreign trade after the World War.— With the signing of the armistice there was a marked decline in our shipments of war supplies, but this was more than counterbalanced by the heavy exports of food-stuffs, raw materials, and manufactured goods to the former belligerents. The need of Europe for these supplies was so desperate and so urgent that they were bought in large quantities at inflated prices. At the same time our farms and industries, expanded to war needs, were turning out large surpluses of goods, whose shipment was made possible by the discontinuance of wartime restrictions and by the release of a large amount of shipping space. The demand continued unabated throughout 1919 and part of 1920. By the middle of that year, however, there was evidenced a marked falling off in the demand for food-stuffs, as Europe began to produce her

own supplies, and for other consumers' goods, as the necessity for greater economy was realized. In the latter year also there was a great increase in the imports into this country, showing a gradual recuperation in the industries of the belligerent countries. It is clear that the unparalleled excess of exports over imports during the period after 1914 was abnormal and transitory and did not mark a permanent change in our trade relations with Europe or with the rest of the world. It must not be forgotten, moreover, that the values in terms of which this foreign trade is stated represent a great monetary inflation, which practically doubled prices for part of the period. Stated in terms of quantities, there was a much smaller expansion.

The United States a creditor nation.—One important consequence resulted from the abnormal trade relations of this period, and that was the change in the position of the United States from a debtor to a creditor nation. From the time of the earliest colonial settlements down to the end of the nineteenth century capital had been borrowed from Europe for investment in this country. It is probable that at the outbreak of the World War in 1914 the people of the United States were indebted to the people of Europe to the amount of about \$6,000,000,000. The excess of our merchandise exports over imports during the three years ending June 30, 1917, amounted to nearly \$7,000,000,000. It is not unreasonable to conclude therefore that these enormous balances resulted in paying off our international indebtedness. After our entrance into the war the United State Government advanced to our Allies the sum of \$10,000,000,000, and after the armistice large advances of private credit were extended to European purchasers. Today the people of the United States are creditors of the citizens of other nations for a sum which may be estimated in round figures at about \$16,000,000,000, exclusive of the war debts.

The significant feature of this fact is not the size of the sum, but the changed relationship of the United States to the rest of the world which it implies. To be a creditor nation

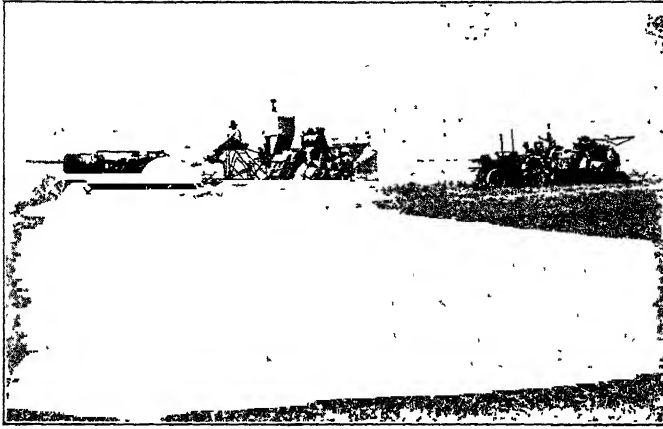
means the receipt by citizens of this country of surplus income from sources outside the country itself ; it means normally larger imports than exports. The full effects of this changed relation have been delayed by the abnormal situation in Europe which compelled the nations there to borrow further sums from this country instead of meeting the obligations already incurred. Sooner or later, however, we may expect that in this country, as in the case of Great Britain, France, and other creditor nations before the war, imports will exceed exports, and the balance of trade will become "unfavorable." This will undoubtedly have an influence upon our traditional attitude of hostility to imports.

Exports.—Down to the outbreak of the World War the characteristic phenomenon of our export trade had been the increase in the proportion of manufactures ; although agriculture still furnished more than half of the domestic exports its share was steadily becoming less. It seemed clear that the country had at last reached a stage in its industrial development where it could compete on equal terms with the older nations of Europe. Of the six articles which supply the chief requisites for manufacturing — coal, iron, copper, wood, cotton, and wool — the United States was the largest producer of all but the last, and was therefore admirably equipped for manufacturing a great variety of commodities. At the beginning of the twentieth century about 80 per cent of the exports consisted of the following ten articles : iron and steel manufactures, copper, petroleum, wood and its manufactures, cotton manufactures, agricultural implements, chemicals, leather and its manufactures, paraffin, paper and its manufactures. While some of the articles involved very little change from the crude state, as petroleum, leather, and wood manufactures, the others represented a large labor cost, as manufactures of iron and steel (which include tools, sewing machines, locomotives, and typewriters), and other articles requiring special skill or mechanical genius, as electrical apparatus (copper manufactures). In the exportation of manufactures of iron and steel particularly, for whose production

the United States is so pre-eminently fitted, there was great growth.

The war demands for munitions and for supplies directed solely to the purpose of winning the war changed the character of our exports to Europe, causing the proportion of manufactures to increase greatly. After the armistice there was another shift, and the demand of war-swept Europe was now for food and clothes, and a little later for raw materials and implements with which to undertake the work of rebuilding their industrial life. The following list of the ten principal articles of export for 1930 is a very different one from that given above, and shows the changed character of the demand for American goods: machinery, raw cotton, petroleum and its products, wheat, automobiles and parts, tobacco, iron and steel-mill products, fruits and nuts, copper and its manufactures, and coal and coke.

Destination of exports.—Our best customer is still Europe, which bought 75 per cent of our exports in 1900 and nearly 50 per cent in 1930. The comparatively narrow Atlantic Ocean, with its good harbors, has always facilitated trade between the nations situated on either side. This trade has grown steadily in volume and is losing in relative importance only because of the greater development of trade with our nearer neighbors. In Europe our best customers are Great Britain (to which our exports in 1930 were valued at \$687,000,000), Germany (\$278,000,000), France (\$223,000,000), Soviet Russia (\$111,000,000), and Italy (\$100,000,000). During the last quarter-century, however, trade with Canada, South America, Cuba, and Mexico, has been growing more rapidly than with Europe; these markets will become more and more important as closer trade relations are developed with them and improved means of transportation bring us into closer contact. The trade with Japan, China, and other countries in Asia has made the most rapid development of all, the proportion going to that part of the world having increased from 4 per cent of the total in 1900 to 14 per cent in 1930.



A HARVESTER-THRESHER IN ARGENTINE

The illustration shows two McCormick-Deering harvester-threshers drawn by International Titan 10-20 tractors. The machine cuts a swath 9 feet wide, and is operated by three men, though under favorable conditions two are sufficient. As fast as the grain is cut, it is carried directly into a threshing machine, where it is threshed out and the grain delivered into sacks on the side of the machine, the straw dropping on to the field at the rear. No twine is necessary for binding. These machines are used principally in the semi-arid regions where the grain is dry enough to thresh when it is harvested.

Those countries which will take what we have to offer, namely agricultural and mineral products, the raw materials for manufactures, and machine-made goods, will prove our best customers. As the United States becomes more densely populated, the surplus of raw products will be less and their export will diminish. With the growth of manufacturing they will be consumed at home, and at the same time the surplus of manufactured products seeking an outlet will increase. New markets will have to be found which will absorb our manufactures and these will be and are being sought in South and Central America, in the Orient, and in our outlying possessions. But American manufacturers have also found a market in Europe itself.

Imports.—While the volume of our imports has shown a steady increase, corresponding with our growth in population and wealth, they have not shown the same spectacular

changes which have characterized our export trade. The following ten articles, in order of their importance, made up in 1900 about 55 per cent of our imports : sugar, hides and skins, coffee, chemicals, raw silk, cotton manufactures, rubber, vegetable fibers, (flax, hemp, jute, etc.), silk and its manufactures, fruits and nuts. By 1930 chemicals had moved into the list of exports, and cotton manufactures and fruits and nuts dropped to lower places in the list. On the other hand, raw silk and rubber ranked first and fourth among the imports, showing the growing importance of raw materials for our manufactures.

The imports fall roughly into three classes. One group consists of articles, chiefly food-stuffs, which the United States does not produce at all or in sufficient quantities, such as sugar, coffee, tea, cocoa, fruits and nuts, spices, diamonds, etc. For most of these we must look to tropical or sub-tropical countries that are sufficiently developed to carry on steady industry, as Cuba, China, India, and South America. Another group consists of fine manufactured goods, of a character or quality that we do not yet turn out ; such are cotton, silk, and woolen goods, manufactures of fur, chinaware, etc. These are obtained almost exclusively from Europe, particularly from Great Britain and France, and also Japan. A third and by far the most important group consists of raw or partly manufactured materials for our manufactures ; these, in the order of their rank, are raw silk, hides and skins, rubber, raw cotton, raw wool, wood pulp, etc. For these articles American manufacturers levy upon the whole world.

But the character of the imports into the United States serves after all to give additional proof of the development of American manufactures, almost all the increase being confined to manufacturers' materials, which make up 58 per cent of the total, and to luxuries. We import, in other words, either the raw materials or partly manufactured goods for use in manufactures and the mechanic arts, or those things which we cannot produce at home.

Assistance to foreign commerce.— Much has been done in the United States of recent years to facilitate foreign commerce. The tendency of our commercial treaties has been to grant concessions to other nations in exchange for favors to ourselves, and thus to modify the severity of our tariff barriers. The consular service has been reformed by being placed under civil service rules, and made of real service to the business men of the country instead of being used as a reward for party services. The creation of the Department of Commerce and Labor (1903) and later the establishment of a distinct Department of Commerce (1912) inaugurated a new policy with respect to foreign trade. Special agents of the Bureau of Foreign and Domestic Commerce have made valuable investigations and reports upon trade conditions in foreign countries. Chambers of Commerce and Boards of Trade all over the country are making organized efforts to arouse an interest in and promote knowledge of our foreign markets ; while a Chamber of Commerce of the United States has recently been organized of one member from each leading commercial and industrial organization representing the principal lines of commerce and industry throughout the country, which co-operates with the Federal departments, and has done much to promote trade expansion. The Pan-American Union endeavors to stimulate trade with Latin America.

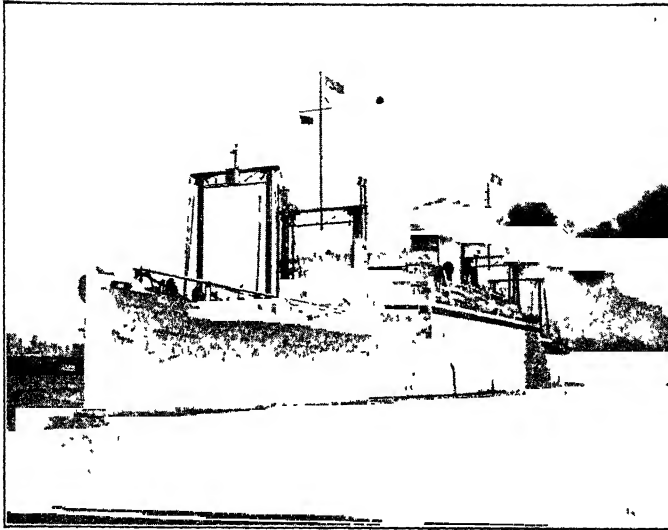
The development of banks and the establishment of foreign connections by our leading international houses have given the benefits of distant credit facilities to exporters. Finally, the establishment of more direct steamship lines, the laying of ocean cables, and harbor improvements, are all favorable influences in the extension of American commerce. The international unification of weights and measures through the adoption by the United States of the metric system, already in general use in Europe, would be an advantage to our manufacturers.

An expansion of our foreign trade, especially of our exports, and the accumulation of capital at home, led to an

effort to obtain markets and places for investment. The building of the Panama Canal and the acquisition of Puerto Rico directed attention to the Caribbean area, and this country soon extended its control over that region. It seemed as though the United States was destined to become as imperialistic as the nations of Europe. After a rather vacillating policy during the first third of the twentieth century, the government announced that the "good neighbor" doctrine will henceforth control our relations with our neighbors and denounced any imperialistic ambitions involving further acquisition of territory. On the other hand, with all our natural advantages, we are handicapped in our competition with European rivals by our failure to adapt ourselves to the prejudices of foreign customers, by our backwardness in commercial and technical education, and by our restrictive tariff policy. An important recent reform is the establishment of free ports or free zones in our ports where a larger transshipment or re-export trade can be built up than has been possible under our restrictive customs regulations.

Effect of the war on American shipping.—The World War created new conditions and new opportunities. Within two weeks after its outbreak Congress eliminated the five-year age limit on vessels seeking American registry, permitted such vessels to retain their foreign officers, and in other ways modified the former exclusive policy. Under these liberal provisions about one hundred seventy-five vessels sought the protection of the neutral American flag, bringing the tonnage under American registry up to 1,871,543 in 1915 and 2,191,715 in 1916. The disappearance of the German merchant marine from the seas, the diversion of British and French vessels into war service, and the sinking of many of these by German submarines, all greatly reduced the number of foreign vessels available for our commerce. What was needed was an increase in ships and the construction of new tonnage.

The Shipping Act of September 7, 1916, created the Shipping Board, which was given important regulatory powers



THE AMERICAN LEGION

This vessel was built for the United States Shipping Board and is a typical specimen of America's war-time marine. It was a combination freight and passenger boat, and was 535 feet long. With great depth of hold for freight and ample carrying capacity for passengers, this type of steamship expressed the war demand for transportation of troops and supplies, but it has now gone out of use.

over shipping engaged in the foreign and domestic trade ; was authorized to acquire merchant vessels by construction, lease or purchase, and to sell or charter them to citizens of the United States ; and finally was authorized to create further corporations to construct and operate vessels. Under this last clause there was organized on April 16, 1917, the Emergency Fleet Corporation, which was given further wide powers. An ambitious program, calling for the delivery of 3256 ships of 18,249,520 dead weight tons, was laid down, and after a time-wasting debate over the respective merits of steel, wood, and concrete ships, construction was finally begun in earnest.

The race between the submarines and the shipbuilders continued through 1917 and the greater part of 1918, ending only with the armistice of November 11, 1918. The

construction of vessels for the Emergency Fleet Corporation continued, however, until some 1500 vessels had been launched. By June 30, 1920, the total sea-going merchant marine of the United States consisted of 4889 vessels of 13,789,874 gross tons ; included in this number were some of the former German ships, which were turned over to this government after the war. The United States was now second only to Great Britain as a shipping nation. The proportion of American exports carried in American vessels had risen by 1920 to 45.14 per cent.

By the Merchant Marine Act of 1920, provision was made for the sale or lease of the vessels controlled by the Shipping Board to private shippers. Various features are designed to encourage the development of an American merchant marine, such as the extension of the coastwise laws to insular possessions and outlying territories of the United States. This will prevent Canadian vessels from plying between Alaska and the United States, or Japanese vessels between Hawaii and this country. One section directed the President to abrogate all treaties whose provisions would prevent the United States from imposing discriminating tonnage and tariff duties. Both Presidents Wilson and Harding refused to carry out this provision. To do so would undoubtedly have embroiled us with leading maritime nations.

The domestic commerce of the United States.—Vast and important as our foreign commerce has become in recent years, it is far exceeded in value and volume by our internal trade. The value of our domestic trade was estimated at about \$28,000,000,000 in 1907, which was practically equal to the total foreign trade of the world in that year. By 1928 the domestic trade had grown to about \$100,000,000,000, which was more than the total world trade of that year, estimated by the League of Nations as \$68,000,000,000. The value of the domestic trade of the United States is about eight times that of our foreign trade. It is not possible to state accurately the volume of our internal trade, but

it has been estimated that in quantity it is about twenty-four times that of our foreign trade. The importance of domestic commercial movements may be illustrated by a few facts : in 1930 the receipts of livestock at nine stockyards were 53,000,000 head ; the receipts of grain and flour at seventeen interior centers were 1,250,000,000 bushels ; railroad freight traffic was over 1,200,000,000 tons ; the domestic lake trade amounted to some 200,000,000 tons ; bank clearings in the Federal reserve clearing system were more than \$600,000,000,000. However we look at it, the volume of our domestic commerce is evidently very great, and much more important than our foreign trade, although the latter attracts greater attention.

The mechanism of domestic commerce.— Interesting changes are taking place in the methods by which goods are distributed from the original producer to the final consumer. The keen competition between large-scale producers, the huge profits to be obtained if goods could be sold directly to the final consumer, and the growth of advertising, as well as other factors, have given impetus to a movement to bring the consumer and the ultimate producer closer together and to eliminate the middle-man. Municipal markets, co-operative enterprises, direct sales by manufacturers to consumers are all being tried. The development in turn of the department store, the mail order store, and the chain store are evidences of a tendency to concentration and of an effort to obtain the economies of large-scale methods and unified control. The department store carries a much larger assortment of goods than even several small ones could ; it saves the purchaser much time and expense by bringing a wide variety together in one spot, and usually is able to sell at lower prices. It is the product of rapid transit, of the large local demand of the modern city, and of other similar factors.

The development of the mail-order business is of the same character, and would take on even larger dimensions if it were not checked by the high cost of freight, express, and postal charges on merchandise. The mail-order house sells

directly to the consumer by means of catalogues, and has many advantages even over the department store, such as a wider market, cheaper methods of distribution, and ability to reach purchasers in rural districts. Chain stores represent the latest form of economical distribution. The five-and-ten-cent stores are the most familiar examples of this type, but candy, drugs, groceries, and tobacco are also retailed in chain stores, some of which stretch across the continent. In every direction efforts are being made to eliminate unnecessary costs and to bring producer and consumer nearer together.

Routes of trade.—The growth of our internal commerce has led to increasingly insistent demands for the improvement and greater utilization of our inland waterways, but so far the movement of domestic commerce has been carried mainly by the railroads. Chicago is probably the greatest distributing point of our internal as New York City is of our foreign trade. While New York easily retains her commercial supremacy as a trading-port, there was a change in the proportion of exports shipped from Atlantic ports, from 68 per cent in 1900 to 47 per cent in 1930. Most of this loss went to Canadian ports, whose exports grew during the same period from 8 to 17 per cent of the whole ; the ports on the Gulf and Pacific coasts also showed a considerable gain. The expansion of our foreign trade has been accompanied by a shifting in the center of the export movement, due to the growing disposition of commerce to seek its destination by the shortest routes. The shipment of cotton to Europe direct from New Orleans or Galveston means a large saving in freight. The increase in the trade of the Pacific ports is attributable to the growth of our trade with South America and the Far East. On the other hand, most of the imports continue to find admission to the country through the Eastern seaports.

With the completion of the Panama Canal, which was first opened to commerce on August 15, 1914, there has already begun a shifting of the routes of trade. Freights

to and from the Pacific coast have been cheapened and industry in that section will consequently be stimulated. The west coast of South America — Peru and Chile — is brought much nearer the United States, and an advantage is given our merchants over their European competitors in trade with them, and also with China and Japan, and possibly with India and Australia. We may expect to see a considerable expansion of trade in those sections which can profit from the new opportunities.

SUGGESTIVE TOPICS AND QUESTIONS

1. How much do the various items which do not appear in the merchandise exports or imports amount to yearly? What is the probable *real* balance in our favor? [E. L. Bogart, *War Costs and their Financing*, chap. 1; C. Gide, *Principles of Political Economy*, 294-7.]

2. The imports of Great Britain and of France were each year much greater than their exports; were they running into debt? [Gide, 292-8.]

3. With what countries is our foreign trade the largest? How do you account for this?

4. Describe the method of settling international trade balances. [J. A. Hobson, *International Trade*, chap. 8; H. R. Seager, *Introduction to Economics*, 360 ff.]

5. Is it true that "trade follows the flag"? [P. S. Reinsch, *Colonial Government*, 62.]

6. What is meant by a "favorable balance of trade"? [W. D. P. Bliss, *Encyclopedia of Social Reform*, art. "Balance of Trade"; Bullock, *Introduction*, 324.]

7. Should subsidies be granted by the government to build up the American merchant marine? [W. L. Marvin, *American Merchant Marine*, chap. 18; R. Meeker, *Ship Subsidies*.]

8. Foreign-built vessels could not be admitted to American registry before 1912; do you think the present policy of "free ships" is better? [D. A. Wells, *Our Merchant Marine*, 209; J. Kelley, *Question of Ships*, chap. 5.]

9. What bearing does our consular service have on foreign trade? Are the consular reports of service to American manufacturers? [C. D. Warner, *Our Foreign Trade and Our Consular Service*, in *North American Review*, CLXII, 274.]

10. Would the people of the United States suffer if they severed all connection with the rest of the world? How would the people of European countries fare if they did the same? [C. F. Bastable, *Theory of International Trade*, 17-21; Gide, 301-6.]

11. How does the trade of South America with the United States compare with their trade with Europe? Account for this.

12. Is there any connection between the amount of our foreign trade and the maintenance of a protective tariff? What effect, if any, would its removal have on our foreign trade? [D. A. Wells, *Our Merchant Marine*, chap. 10.]

13. Account for the relative growth in the foreign trade of the Gulf ports, and the relative decline of that of New York City.

14. What was the cause of the sudden increase in exports in 1901? [Twelfth Census, VII, clxiv-clxx.]

15. Describe the "American invasion" of Europe in 1901. [F. A. Vanderlip in *Scribner's Magazine*, XXXI, 3, 194, 287; *Century Magazine*, XXIX, 786.]

16. "The sugar situation in Cuba led to the revolution which brought about our recent Spanish war, and thus indirectly the expansion of the American republic into imperialism." [E. R. A. Seligman, *Principles of Economics*, 40.] Comment on this.

17. Ascertain to how many foreign countries the products of some local factory are sent; to how many States in the United States.

18. Is there a waste of labor involved in the constant exchange and transportation of products throughout the country?

19. How many countries are represented by the articles on your dinner table?

20. What is the policy of the United States in dealing with its non-contiguous territory? [W. F. Willoughby, *Territories and Dependencies of the United States*, A. Ireland, *The Far Eastern Tropics*.]

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CHAPTER XXXIII

PRIVATE AND PUBLIC FINANCE

The greatest problem in the domain of private finance is undoubtedly how to avoid panics and crises, and as an effective method of control of business a good banking system has been given increasing attention. In spite of great advance through the establishment of the Federal Reserve System, further problems remain to be solved. In the field of public finance the paramount problem during the war was how to raise by taxes and loans the vast sums needed by the government ; during the depression the problem was one of financing relief ; today the problem is how best to raise by taxation the money needed to run the government and to pay off the debt.

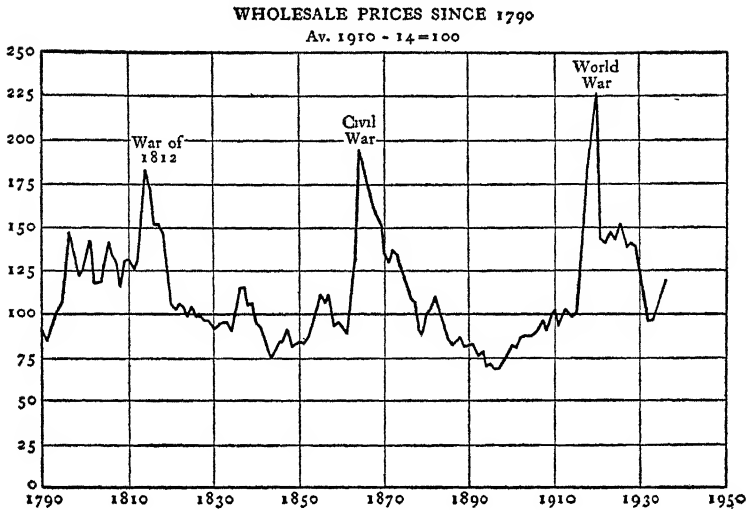
The Federal Reserve system.— There had long existed dissatisfaction with the national banking system which had been established during the Civil War, but which no longer met the expanding needs of business. Beginning in the nineties, criticism of this system had been growing, and finally culminated in the appointment in 1908 of the National Monetary Commission, to investigate banking and currency systems throughout the world and to propose a plan for legislation. After five years of discussion of the general problem the Federal Reserve Act was passed on December 23, 1913. It took some time to organize the new system, but on November 16, 1914, the present Federal Reserve System became effective. It must be regarded as little short of providential that it was put into operation so soon after the beginning of the World War, for without its aid the enormous governmental loans and other features of war finance could not have been carried through so successfully. It has met the two main evils of the national banking system — inelasticity and lack of co-operation — and has

given the United States what has exaggeratedly been called "the best banking system in the world."

A unified system.—Centralization of the banking system was obtained by the creation of a Federal Reserve Board, which is charged with the general administration, and has its offices at Washington. The country was divided into twelve districts, within each of which a regional Federal Reserve Bank was established at some principal city. All national banks were compelled to become members and State banks were urged to join the system. Each regional Bank is the central bank of the district and in it the member banks of that district are required to keep their reserves. The regional Banks carry on only certain limited kinds of business with the general public, acting rather as the banks of the member banks, rediscounting their notes and commercial paper, and performing other services. By this means there is achieved a high degree of centralization of reserves, and the possibility is given of a better co-operation among member banks within a district. This also obtains among the regional Banks themselves, so that the resources of the whole country may be mobilized in the most effective fashion.

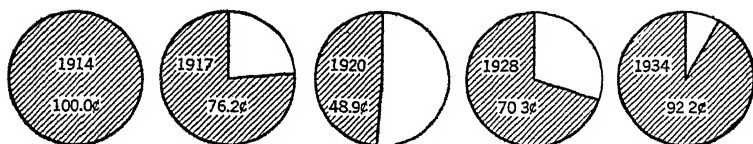
An elastic currency.—Elasticity of the currency is also provided for. It is assumed that the demand for money keeps pace with the expansion of business ; when business is growing more money is needed, and when depression comes the supply of money should contract. The regional Federal Reserve Banks accordingly issue notes to the member banks in a district by rediscounting the commercial paper upon which they have themselves made loans to merchants, manufacturers, and others. Such Federal reserve notes are issued in response to business needs and are further protected by a 40 per cent gold reserve.¹ Further issues are permitted in excess of this reserve in times of emergency, but they are penalized by a graduated tax which ensures their prompt retirement when the need is over.

¹ Since the devaluation of the gold dollar these reserves have consisted of gold certificates and other kinds of "lawful money."



The Federal Reserve Banks and the war.—There was a twofold demand upon the banks during the war : they were called upon to grant accommodation to private business to enable it to meet the new demands upon it, and also to act as fiscal agents of the government and assist in the flotation of the Liberty loans. They performed both these tasks with marked success, but the enormous expansion of their operations had some unfortunate results. Of these the most striking and far-reaching in its effects was the inflation both of note-issues and of deposits. Between March 30, 1917, a week before the entrance of the United States into the war, and December 27, 1918, the increase in Federal reserve notes was \$2,328,000,000, and in deposits, \$1,017,000,000.

Still greater expansion occurred in the deposits of the member banks. Gold was held in the reserves of the banks and did not enter into circulation, and considerable silver was actually withdrawn from use. The net result was, however, an inflation of the currency and high prices, such as occurred after the War of 1812 and the Civil War. This is clearly shown by the diagram on this page. By July 1,



PURCHASING VALUE OF THE DOLLAR

1921, the per capita circulation of money in the United States had increased to \$53.42. Other causes were also responsible in part for high prices, such as abnormal war demands for certain commodities and scarcity due to the withdrawal of labor and diversion of capital from normal production, but the chief blame must be laid upon currency inflation. This seems to be an almost inevitable result of war, though in the case of the World War the worst excesses occurred in the year and a half following the armistice.

The crisis of 1920.—As a result of the inflation, high prices, over-expansion, and speculation which occurred during 1919 there occurred the following year a reaction which was followed by a short period of depression and falling prices. The crisis of 1920 differed, however, from those that had occurred in the United States throughout the previous century in that there was no sudden convulsion, no panic followed by widespread bankruptcies and business failures. The bubble of high prices and speculation had become inflated to dangerous proportions, but instead of bursting, it was gradually deflated. Speculation was discouraged by increasing the discount rates of the Federal Reserve Banks, inflated prices were brought down by a "buyers' strike" at home and by a decline in the demand from abroad, and deflation of the currency was enjoined upon the banks of the country as a necessary step. The result was that the readjustment to more normal conditions was made with probably a minimum of suffering. The commercial failures in 1920 amounted to less than one-half of one per cent of all firms. Credit for this must be given to the Federal Reserve system. While it is too much to assume that any improved mechanism of

credit alone can entirely prevent alternations of prosperity and depressions, yet it may be said that the worst excesses of previous panics were prevented.

Revival of prosperity.— The deflation movement had run its course by 1922 and prices were stabilized, but at a level still about 50 per cent higher than before the war. Industry recovered from the depression to a sounder state, production and sales increased, unemployment was steadily reduced, and wages were raised. Agriculture alone, faced by world competition in the case of important export crops, failed to share in the returning prosperity. The years from 1922 to 1929 were nevertheless prosperous ones for most of the people. Manufactures generally were expanding, business was good, and labor was able to find employment at rising wages. This was reflected in the increasing yield of government revenues ; not only was the Federal war debt being paid off at the rate of about \$1,000,000,000 a year, but it was found possible at the same time to remove some of the war taxes.

It is estimated that during this period the physical volume of production in manufacturing increased about 42 per cent. This great output was absorbed in various ways. Much of it went into expanded plants and new capital equipment, so much indeed that many industries developed a productive capacity in excess of the possibilities of sale at remunerative prices. The hope of large profits in industry led to an over-investment in many lines comparable with internal improvements in the 1830's or railroads in the 1870's. During this period, too, the people of the United States loaned to foreign countries nearly \$8,000,000,000, of which three-quarters were represented by exports of goods in excess of our imports. And finally, installment sales in these years increased from \$1,500,000,000 to \$9,000,000,000, representing mostly consumption goods that were bought but not paid for.

Much of this business was done on credit. Installment sales were met by finance paper, foreigners paid for goods by

sending us their bonds in return, and industrial capital was obtained by the floating of securities in the domestic market. A new emphasis was thus placed on investment banking, which was greatly facilitated by a provision in the McFadden Banking Act of 1927 which permitted national banks to engage in the buying and the selling of investment securities. Many banks set up security affiliates for the purpose of distributing bonds and other securities to investors, and a disastrous confusion was introduced into two very different kinds of banking, commercial and investment, which were now carried on by the same institution. The McFadden Act also permitted the consolidation of State and national banks and authorized the establishment of branches insofar as State laws would allow. It is estimated that between 1922 and 1929 some 4000 bank mergers were effected. As result of one series of combinations the National City Bank of New York became the largest bank in the world.

We have seen how in former crises credit expansion by banks contributed to the boom conditions which always precede a panic. Nor was this factor lacking in our most recent crisis. The inflation accompanying the war, already described, had raised prices to a new high level. This was carried further in the following decade by the expansion of bank credit in financing domestic and foreign purchases. In 1929 the Federal Reserve authorities, influenced by international considerations, deliberately embarked upon a policy of easy credit, which still further stimulated the upward swing of prices and of business expansion. But much of this credit did not go into the financing of legitimate enterprises ; instead it was used for stock market speculation, which offered a much quicker road to fortune. It is estimated that more than a million persons were speculating on the stock and produce exchanges during the summer of 1929 and that around \$20,000,000,000 of borrowed money was used in financing this speculation. So much capital was diverted into these channels that large sums were drawn from the savings banks for speculative purposes. The prices

of stocks were run up to dizzy heights and a "new era" was proclaimed. Thus the stage was set for a speculative stock exchange boom.

Panic of 1929.—On October 24 the speculative bubble burst, and all the familiar consequences of a financial crisis showed themselves. The prices of stocks fell disastrously, as did those of farm crops and manufactured goods. Within a few hours stock values shrank by \$5,000,000,000. To avoid complete collapse the New York Stock Exchange was closed, as were several other exchanges. Factories shut down or ran on part time. Building construction fell off a half during the next year. Unemployment increased and wages sank to new low levels. By January, 1930, probably 3,000,000 people were out of work, and this number grew steadily during the next three years.

Foreign demand for our manufactures and agricultural products, which had been largely financed by borrowed money, fell off as we ceased to loan abroad. American exports dropped from \$5,241,000,000 in 1929 to \$3,843,000,000 in 1930, and to \$1,611,000,000 in 1932, the lowest year. The effect of this was particularly disastrous to those industries which depended on foreign markets for the sale of a large proportion of their output; such were cotton, lard, wheat, copper, typewriters, sewing machines, and similar articles. Domestic consumption also declined as business profits vanished and wages fell. By 1932 the incomes of wage-earners had fallen to half what they had been in 1929, and farm income to one-third. As a result of the decreased purchasing power of these groups the demand for goods and services was cut in half. Production was in turn curtailed and thus the vicious circle of the trade cycle was set in motion.

One particularly disquieting feature of the depression was the increasing number of bank failures. During the decade of the twenties the average annual number of failures had been 699, with average annual total deposits of \$259,000,000; but in 1930 there were 1326 failures, in 1931 the

number grew to 2294, and in 1932 was 1456. For these three years the deposits of the failed banks amounted to \$3,260,000,000, or more than in the whole previous decade. The worst record was made by the small State banks in the agricultural States, whose assets were "frozen" in farm mortgages and similar uncollectible loans. But bad banking was not confined to the country banks; equally improper practices marked the conduct of the large city banks. Investment affiliates passed on to the public the least desirable securities held by the banks controlling them. Bond and stock issues, both domestic and foreign, were sponsored by investment bankers and sold to private investors without adequate investigation and often with misleading prospectuses.

The disclosure of these and other practices led to the passage by Congress of the Securities and Exchange Act, signed by the President on June 6, 1934, regulating stock exchange operations. The purposes aimed at in this act were to assure honesty in the practices governing transactions on the security market, abolishing all forms of fictitious and manipulative sales; to afford adequate and correct information to purchasers of securities as to their financial character; and to provide for the control of credit used for speculative purposes. This measure should prevent some of the worst abuses which have attended speculation in the past, and make the stock exchanges a true market for investment securities.

Banking reform.—By the beginning of 1933 there was general distrust of the banks. The numerous failures led people to withdraw their deposits and to hoard currency. Between January 1 and March 4 it is estimated that hoarded currency increased by \$1,500,000,000. Panic spread and runs were made even on sound banks. On March 4, 1933, when President Roosevelt assumed office, all the banks were closed in 32 States, and most of them in the remaining States. The first step of the new administration was to proclaim a national banking holiday, thus keeping all the banks closed until appropriate legislation could be enacted. All stock and commodity exchanges remained closed.

On March 9 the Emergency Banking Act was passed. This authorized large additional issues of Federal Reserve notes, so that there would be no money stringency, required all persons to surrender their gold to the Federal Treasury, provided for conservators of closed banks, and in other ways met the crisis. Beginning on March 13 sound banks were permitted to open and within a week banks having three-fourths of the deposits of the country were running as usual. Many of the weaker institutions, however, remained permanently closed. There was a great decline in the number of banks from the maximum of 30,000 in 1920 ; in May, 1934, only 14,826 banks were operating in the United States.

The Glass-Steagall Banking Reform Act of June 16, 1933, was more fundamental and revolutionary. It divorced commercial and investment banking, permitting existing institutions to carry on either but not both. It empowered member banks to establish branches in those States (12 in all) which by State law permitted it. And it prohibited the payment of interest on demand deposits, and provided for closer regulation of national banks. The section which aroused the most controversy provided for a guaranty of bank deposits. Under the permanent plan, which was finally set up by the Banking Act of August 23, 1935, all deposits up to \$5,000 are guaranteed 100 per cent ; and nothing beyond that amount. Each of these provisions was aimed at a specific abuse and some of the reforms were long overdue.

The Banking Act of August 23, 1935, clarified some of the provisions of the earlier legislation. The name of the Federal Reserve Board was changed to Board of Governors of the Federal Reserve System ; the double liability of holders of national bank stock was terminated July 1, 1937 ; State banks with average deposits of \$1,000,000 or over will be compelled to become members of the Federal Reserve system after July 1, 1942 ; and numerous other technical changes were made, the net result of which is a strengthening of the banking structure.

Monetary experimentation.—Banking reform legislation had proceeded along familiar and, on the whole, approved lines. But the monetary legislation passed during President Roosevelt's administration introduced innovations and experiments. In order to make this clear the theory of money and prices may be briefly stated. The level of prices varies more or less closely with the amount of money and credit in circulation, more money causing prices to rise and less causing them to fall. A rising price level is usually accompanied by prosperity, and a falling price level by depression. The inflation of 1922-29 was a boom period, while the deflation of 1930-33 was one of hard times. There was consequently a strong demand for a return to inflation, or, as it was now called, "reflation," which was especially insistent among the farmers. This philosophy was enacted into legislation by the Thomas Amendment to the Farm Relief Act of May 12, 1933, which gave the President the following discretionary powers : (1) to authorize the Federal Reserve Banks to expand their credit by the open market purchase of government obligations up to \$3,000,000,000 ; (2) to issue up to \$3,000,000,000 in United States notes or greenbacks ; (3) to devalue the dollar as much as fifty per cent.

Of these three options the President chose the third, and by a series of proclamations gradually reduced the gold content of the gold dollar, until on January 31, 1934, it contained only 13.71 grains of pure gold instead of 23.22 grains which had been fixed by the law of 1837. In other words, the dollar was revalued — or devalued — at 59.06 cents in gold, at which point it now stands. Further executive orders forbade the hoarding of gold and directed all persons to surrender gold in their possession to the Federal Treasury, prohibited the export of gold, and abrogated the gold clause, providing for payment of principal and interest in gold, in all public and private contracts. The final step in the control of the gold supply of the country was taken by the Gold Reserve Act of January 30, 1934, which directed the re-

removal of all gold held by the Federal Reserve Banks to the Federal Treasury, to be held for the benefit of the whole nation. A similar policy was followed with respect to silver, and by August, 1934, the stock of gold and silver money in the country was completely nationalized.

It was believed by those who advised this policy of a managed currency that the devaluation of the dollar would be accompanied by a corresponding rise of prices. Their expectations were, however, not realized, for the great decline in the purchasing power of the people prevented this cheaper money from entering largely into circulation and so influencing prices. The presence of this vast reserve of gold nevertheless affords the basis for a great credit inflation if the available currency and bank credit find their way into circulation. The failure of prices to rise as quickly as desired has led some of the inflationary groups to demand that the President avail himself of the authority granted him of issuing \$3,000,000,000 in paper money. Thus far this demand has been resisted.

War expenditures.— Little attention has been given in previous chapters to government finance, but the financial transactions during the World War were on such a gigantic scale and have since affected the fortunes of every individual so profoundly that it is desirable to describe them briefly. Although the United States was the last of the major belligerents to enter the war, the expenditures by the government at once rivaled and soon surpassed in magnitude those of the other countries. The expenditures of the Federal government, excluding postal expenditures, for the fiscal year ending June 30, 1916, were \$724,502,998, and had been at this level for some years ; in 1917 they were \$1,147,898,991 ; in 1918, the first full year of the war, they jumped to \$8,966,532,266 ; and in 1919 reached the enormous sum of \$15,365,297,396. The total expenditures attributable to the war, including advances of about \$10,000,000,000 made by the United States to our Allies, may be given in round numbers as about \$32,000,000,000. This is three times as

much as the total expenditures of the Federal government during the first one hundred years of our national existence, including those for the War of 1812, the Mexican War, and the Civil War.

The expenditure of this money meant the diversion of labor and capital from peacetime occupations to the production of munitions and supplies, to the payment and equipment of soldiers, and to other similar items. Since it was impossible to do all these things and at the same time carry on "business as usual," many of the non-military lines of production suffered. As the war proceeded it became clear that all the human and material resources of the nation must be mobilized for the single purpose of winning the war. Systems of priority were established by the Federal government, according to which materials, fuel, labor and transportation facilities, and even credit were assigned first to the war industries and last to those producing luxuries. Not only this, but appeals were made to the people to reduce their consumption of certain important articles, like wheat, sugar, chocolate, etc., and also to exercise thrift in their general expenditures. These methods were successful in saving large amounts of needed food for our Allies, and in diverting large savings of money into the purchase of Liberty bonds, the proceeds from which could then be used to prosecute the war.

War taxes.—To obtain these enormous sums it was necessary to resort to taxation and to borrowing on an unprecedented scale, as not all of it could be saved out of current production. In 1913 an amendment to the Constitution had permitted the imposition of a Federal income tax, and Congress had provided for one in the revenue act of October 3, 1913. This, together with the excess profits tax on business, formed the backbone of the revenue system during the war ; and was supplemented by an inheritance tax and internal revenue duties which were expanded until they touched practically all luxuries and many necessities of life. The progressive principle of taxation was applied, by which the

larger incomes or profits were taxed at a higher rate than the smaller ones. Thus the highest rate in the income tax was 67 per cent and in the excess profits tax was 65 per cent ; that is, the government took two-thirds of the income and left only one-third to the owner. These high rates were reduced by the acts of February 24, 1919, and November 23, 1921 ; but the war left as a legacy to the American people a heavy burden of taxation which may endure for a generation. The revenues raised by taxation during the war were as follows : for fiscal years ending June 30, 1914, \$735,000,000 ; 1915, \$698,000,000 ; 1916, \$779,000,000 ; 1917, \$1,118,000,000 ; 1918, \$4,174,000,000 ; 1919, \$4,648,000,000. The difference between these sums and the expenditures was raised by loans.

The war debt.— Before the World War the national debt of the United States amounted to only \$1,200,000,000 or about \$13 per capita. Since two-thirds of the war expenditures were met by the sale of bonds, the national debt mounted rapidly during this struggle. It is not possible to describe the methods of financing the war at this point, but the more important facts may be stated.² Five bond issues were made by the government, the first four of which were called Liberty loans, and the fifth, which was floated after the armistice was signed, the Victory Liberty loan. The amounts obtained by the Treasury through the successive issues were as follows : First Liberty loan, \$2,000,000,000 ; Second, \$3,808,758,650 ; Third, \$4,176,516,850 ; Fourth, \$6,964,000,000 ; Fifth, \$4,498,000,000. These enormous sums were obtained from practically every class in the country, the number of individual subscribers running up to 22,000,000 persons in the fourth loan. In addition to the bonds, whose lowest denomination was \$50, war savings certificates for \$5 and thrift stamps for 25 cents were also sold. In the “drives” for the sale of bonds and certificates valuable lessons of personal thrift were instilled, together

² For a full description the reader is referred to the author's “War Costs and their Financing” (New York, 1921.)

with a knowledge of investments, which have had a remarkable effect in bringing into existence classes of savers and investors who, before the war, had not been known.

The war debt of the United States reached its peak on August 31, 1919, when it stood at \$26,596,701,648, or about \$250 per capita. After that it was steadily reduced, in accordance with the approved American policy of rapid debt payment in time of peace, at the rate of about one billion dollars a year. On January 1, 1930, the public debt had been brought down to \$16,300,921,501, or a reduction of \$10,000,000,000 in ten years, a feat unparalleled in financial history.

This policy of debt reduction was abruptly halted by the depression, as a result of the decline in government revenues and at the same time because of the imposition on the Federal government of heavy new burdens of relief and public works. As a consequence of these combined forces the Federal debt was pushed up again even beyond the war maximum. By the middle of 1938 it had reached the highest point in our history, when it stood at approximately \$37,000,000,000; it is not possible to state the exact amount, for the government is still borrowing.

SUGGESTIVE TOPICS AND QUESTIONS

1. Account for the rise of prices, 1900-1914. [J. L. Laughlin, *Money and Prices*; A. D. Noyes, *Forty Years of American Finance*.]

2. Why did prices rise so much higher in the period 1914-1921 than in the preceding fourteen years? [E. L. Bogart, *War Costs and their Financing*; J. L. Laughlin, *Money and Prices*.]

3. What is meant by the statement that under the national banking system the currency lacked elasticity? [O. M. W. Sprague, *Defects in the National Banking System*; H. White, *Money and Banking*.]

4. In what ways, if at all, has the Federal Reserve system provided for greater elasticity? [E. W. Kemmerer, *The A B C of the Federal Reserve System*; J. T. Holdsworth, *Money and Banking*.]

5. During the discussion preceding the establishment of the Federal Reserve System, several other proposals for the reorganization of our banking system were made. What were these? [Report of the National

Monetary Commission, J. L. Laughlin (Ed.), *Banking Reform*; H. White, *Money and Banking*.]

6. Compare the panic of 1907 with the crisis of 1920.
7. Is it desirable to have so many independent banks?
8. Why is it important to have centralization in the banking system?
9. Many business men insisted that during the war we should carry on business as usual. Do you think this was sound advice?
10. Define "frozen credits." What effect do they have on a bank which holds them?
11. How did the United States become "the leading creditor nation of the world"? What is involved in this?
12. Why do prices rise during wars?
13. Do you think the public debt should be paid off as rapidly as was done between 1919 and 1929?
14. Was the increase in the debt in a period of peace, after 1929, justified?

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CHAPTER XXXIV

CONCLUSIONS

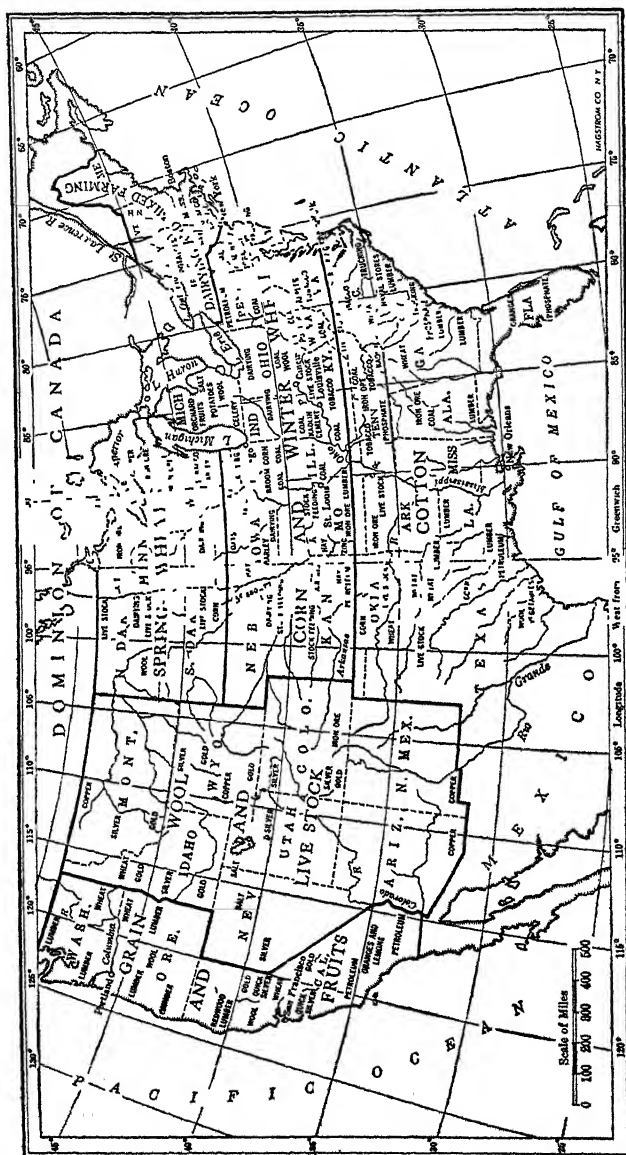
The people of the United States have been wonderfully blessed by the possession of rich natural resources, and to this factor they owe in large measure their rapid economic progress. The wealth produced has, however, been very unequally distributed, and large numbers of wage-earners today have incomes below a bare subsistence level. How to raise the earning power of all the workers to a true American level is the paramount problem of the immediate future.

Physical conditions of industrial development.— In the opening paragraph of this book the statement was made that the main conditions of the industrial growth of a country consist of the character of the people and of the natural resources. The intervening chapters have traced briefly the manner in which man has made use of the material resources at his command in the United States during the past three centuries, and some conclusions as to the extent of the progress achieved may now properly be drawn. That we have made material progress there is no question. The territory that once supported a few hundred thousand Indians is now populated by 125,000,000 people on an immensely higher plane of culture and material well-being. And the progress is still continuing, at a constantly accelerating rate of speed. The life of a generation suffices today to effect a complete industrial revolution. Indeed so rapid is the rate of change that the displacement of old machinery and methods by new inventions is accepted as a normal incident in industry and, is taken into consideration like other costs in production.

How may this rapid and great advance be accounted for? First of all as a factor in development must be noted the character of the people themselves.

The character of the people.— Combining the best characteristics of many of the best stocks of Europe, the American people have yet developed some distinctive traits. They are characterized by qualities of nervous energy, intelligence, independence in thought and method, boldness in initiative, and perseverance in enterprise. The absorption in material pursuits and the over-emphasis of the value of material success have been largely developed as a result of the industrial environment. Partly as a result of these same forces and partly inherited, a peculiar aptitude in the invention and use of labor-saving machinery has been noted by all writers as a special characteristic of the American. Equally quick in devising original methods or adapting the ideas of others, he has applied machine methods to every line of production. Called into being at first by necessity, American ingenuity has been fostered and developed, and has found probably its best application in the invention of complicated machinery.

The physical resources of the United States.— The second great factor in the development of the country has been its wealth of natural resources. Of these may be mentioned first the extent of territory, which amounts in Continental United States to more than 3,000,000 square miles or about 1,920,000,000 acres. More important than mere size, however, is the fertility of the soil or its serviceability for man's uses. Next in importance to the fertility of the soil may be ranked the distribution of temperature and rainfall. Temperature has both a direct influence upon man and an indirect influence through its effect upon the plant and animal life at his disposal. A cold climate seems best adapted to call forth those virtues which are helpful to economic progress. Those portions of Europe which have sent forth the most energetic people and have developed the highest civilization are situated between the lines of forty and seventy degrees average annual temperature. It is noteworthy that North America is broadest in the temperate zone and tapers down to a narrow point in the tropical zone, in which respect it is the opposite to South America or Africa. In



REGIONAL DISTRIBUTION OF PRODUCTS IN THE UNITED STATES

respect of temperature the United States is more favorably situated than any other country in North America. Of not less importance than the temperature are the amount and the distribution of moisture. An annual rainfall of at least 20 inches is essential to agriculture, districts with less than that being suited only to grazing, while a rainfall much exceeding 50 inches produces a rank growth harmful to most of the plants grown in the United States. The average annual rainfall of the United States is 29.6 inches. As a final item in this catalog of physical advantages may be mentioned the mineral resources, which have already been described.¹

Environment and economic development.—Several advantages result from the possession by the United States of this varied yet well-balanced climate. Because of the wide variations in the climate and character of the land there exists an immense variety of plant life. The danger of a general failure of our staple agricultural crops is slight, for a loss in one part of the country is almost certain to be made good in another. A certain stability is thus given to agricultural products and prices. Another advantage exists in the variety of crops which such a wide range of climate ensures. Not merely does the United States lead all other countries in the production of dairy products, corn, and wheat, but the greater part of the lumber, meats, tobacco, and cotton, which enter into the world's trade, come from its forests and fields. This diversity of climate and resources has meant great diversity of occupations with attendant differences of interests, habits of living, and modes of thought. While this fact has had a certain influence in dividing the people into sections with opposing interests, on the whole it has made for broadness of view and catholicity of interests.

In its direct effect upon the race which has grown up in the new world, the environment seems to have made for a stronger and hardier people than many of those of the old world. The best available statistics on this point are probably those gathered by Dr. B. A. Gould during the Civil

¹ See Chap. XXII.

War, which are based upon measurements of more than 1,000,000 soldiers. The main results are briefly summarized in the following table : ²

PHYSICAL MEASUREMENTS OF WHITE SOLDIERS (AVER. 21 YEARS) IN THE CIVIL WAR				
	Height (in.)	Weight (lbs.)	CIRCUMFERENCE OF CHEST (INCHES)	
			Full Inspiration	After Inspiration
New England	67 9	139.4	36 7	34 1
Middle States (N. Y., N. J., Pa.)	67 5	140 8	37 1	34 3
Ohio and Indiana	68 4	140 8	37 5	34 9
Coast Slave States.	68 2	140 9	36 6	34 2
England	66 6	137 6	36 9	34 3
France, Belgium, and Switzerland	66 5	137 8	36 8	34 3
Germany	66 7	140 3	37.1	34 7

From this it will be seen that the European stock has improved during the long residence in America, and that the American of today is better developed physically than his old world ancestors. "When one considers all these things," says Channing, "—the climate and rainfall of the United States, its physical configuration, its adaptability to the service of civilized man, its fertile soils and magnificent water powers, its inexhaustible mineral resources, and the effect of environment on the physical body — one must admit that the European race has gained by its transfer from its ancient home to the soil of the United States." And one must also appreciate, it may be added, the effect on their development of the remarkable environment and wonderful resources in the midst of which the American people have worked out and are working out their economic and social destiny.

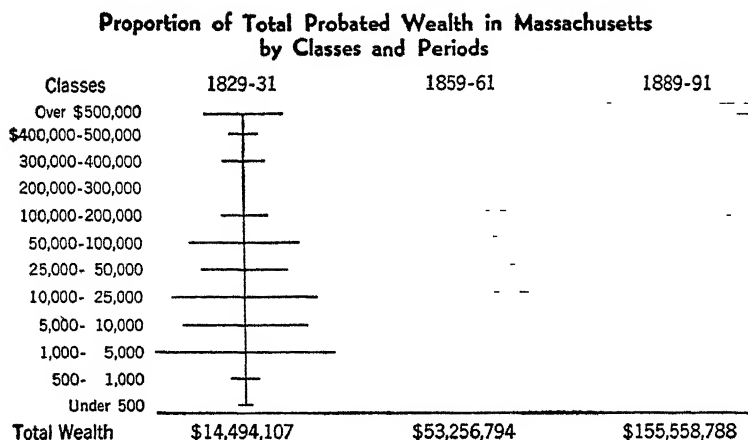
The concentration of wealth.—The record of the economic development of the American people has been one of steady growth in national strength and material wealth. Before concluding this survey, however, it will be desirable

² U. S. Sanitary Commission Memoirs, vol. II, pp. 104, 277, 403.

to ascertain, if possible, to whom this vast increase of wealth is going. The situation may be stated somewhat as follows : We have large natural resources of almost every sort needed in modern production ; a working population of some 50,000,000 persons, many highly trained ; a supply of active capital of not less than \$150,000,000,000 ; a highly efficient organization of industry, transportation, and finance, which permits economical production and exchange of commodities ; and finally, political and social conditions which are distinctly favorable to the production and acquisition of wealth. It is certainly pertinent to inquire, not merely what this combination of resources, labor, capital, and skill is effecting in the way of production, but also how the vast output is being distributed.

Equality of conditions and the wide diffusion of wealth have long been the boast of our Republic ; are they less true today than they were fifty or one hundred years ago ? In the three-quarters of a century, 1850-1922, the per capita value of all property in the country increased almost tenfold from \$308 to \$2918 ; how has this wealth been distributed ? While no absolutely exact statistics exist on this subject, yet reliable estimates by scientific students all tell the same story — of concentration of wealth in the hands of the richest groups. The character of the changes which took place in the last seventy-five years of the nineteenth century is perhaps best shown in a study of probated estates in Massachusetts, made by the State Bureau of Statistics of Labor.

This gave the amount of wealth that was probated at different periods, classified according to the size of the estates that were left. If we represent the percentages of the total wealth probated at each period by graphs, in which the length of the lines represents the percentage in each class, and the thickness of the lines represents the relation of the totals from one period to another, we shall obtain a clearer idea of the changes that have taken place than we could get from a mere table of figures. It will be seen that in the period 1829-31 the branches of the tree-like figure are broadest



near the base, while the reverse is true for the period 1889-91. That is, a larger proportion of the probated wealth was in small estates of not over \$5000 in 1830 than was the case in 1890, while in the latter period the largest single group was that of estates of \$500,000 and over. This would seem to indicate an increasing concentration of wealth in the hands of the richest men. But another significant feature of the graphs is the fact that the top branches tend to grow longer at the expense of the lower branches, showing a tendency for all the estates to become larger as time goes on. In 1829 the amount of the average estate was \$4000; sixty years later it was more than \$10,000. The increasing wealth of the community is also shown by the thickening of the lines.

These figures seem to show not merely that a large proportion of the total wealth is in the hands of the rich, but that this proportion has greatly increased. In 1893 Mr. George K. Holmes estimated from a study of the statistics of farm and home ownership in the United States in 1890 that "91 per cent of the families of the country own no more than about 29 per cent of the wealth, and 9 per cent of the families own about 71 per cent of the wealth." A later and more careful study has reached more conservative conclu-

sions.³ Income rather than wealth was made the subject of this investigation, and the conclusion was reached that 86 per cent of the gainfully employed in 1918 received about 60 per cent of the national income, while 14 per cent of those employed received the remaining 40 per cent of the income. The total national income for this year was estimated at \$61,000,000,000, which would yield a per capita income of \$586, or \$2930 for a family of five. Both of these figures are unduly high as they are figured in terms of an inflated currency, but even when reduced to a pre-war level both figures are higher than those of any other country. For 1928 the Department of Commerce estimated the national income at \$81,034,000,000, the highest point ever reached; by 1932 this had shrunk, as a result of the depression, to \$39,500,000,000; by 1936 it was up to \$63,800,000,000 again.

Distribution of income.—The distribution of the current social income among the different economic groups is, after all, more important than the distribution of wealth. We may therefore first raise the question as to whether enough is produced to afford every member of society a decent living. Whether that goal can be attained, we were moving in that direction during the first quarter of the twentieth century. From the Committee on Social Trends we have the statement that, "From 1900 to 1930 the population of the United States increased by 65 per cent, while from 1899 to 1930 the quantity volume of manufactures increased by 151 per cent, with a peak in 1929 representing an increase of 208 per cent from 1899. Although the increase in producers' goods — industrial apparatus and equipment — was relatively the more rapid, still the output of consumers' goods appears to have been considerably in excess of the growth of population." Another study estimates that per capita income increased about 38 per cent between 1900 and 1929.

³ *Income in the United States: Its Amount and Distribution, 1909-1919.* By W. C. Mitchell, W. I. King, F. R. Macauley, O. W. Knauth (New York, 1921).

Mass production by machine methods was turning out an amazing variety of commodities at steadily lower prices, so that not only necessities, but also comforts and some luxuries, were brought within the purchasing power of the average wage-earner. It is a common saying that the worker of to-day can command goods that a king could not have bought in the Middle Ages. This is true. Invention and technological improvements have not only multiplied products, but they have lessened the gap between the various economic groups, so far as the basic requirements of food, clothing, shelter, and recreation are concerned. The question is still unanswered, however, as to whether the present distribution of the social income affords to all workers a satisfactory living.

A recent study by the Brookings Institution ⁴ states that in the United States in 1929 there were 27,474,000 families of two or more persons. Of these, some 6,000,000 families, or 21 per cent, had incomes of less than \$1000 a year, while 16,000,000 families had less than \$2000 a year. But the authors estimate that a family income of \$2000 at 1929 prices was only just sufficient to supply basic necessities. The conclusion is irresistible, therefore, that many families — perhaps a majority — do not share adequately in the increased wealth of the country.

The scale of living.— The further question may, however, be raised as to what constitutes an adequate scale of living. There is no one absolute standard, but several on different levels have been distinguished by Professor Ogburn.⁵ These are (1) the pauper or charity level, (2) the minimum or bare subsistence level, (3) the minimum comfort level, and (4) the reasonably adequate or security level. Many studies of working men's budgets have been made to determine the minimum on which such a family can live. Taking 1926 as a normal year, the National Industrial Conference placed the

⁴ *America's Capacity to Consume*, by M. Leven, H. G. Moulton, and C. Warburton (Washington, 1934), 54.

⁵ W. F. Ogburn, "Cost of Living," *The American Labor Year Book*, 1920, 159-160.

cost of maintaining a family of four between \$1440 in Marion, Ohio, and \$1660 in New York City. The League of Women Voters of Cincinnati placed the cost in that city at \$1674.

Did the workers in that year earn enough to meet these requirements? W. I. King calculated that the annual average earnings of wage workers in all industries in 1926 were \$1217 and Paul H. Douglas gave the annual average earnings for all workers in urban industry as \$1444. It appears, then, that large groups of families receive less than sufficient to meet the requirements of the minimum subsistence level, and many more fall below the level of comfort. In view of these facts the talk of overproduction and of the "peril of plenty" would seem to be beside the mark. Partly responsible, without question, is the unequal distribution of the national income, but even more is the insufficiency of the total social income to provide adequately for the requirements of a people with steadily rising standards of living.

Economic loss through inequitable distribution.—It is evident that we have moved a long distance from the democratic conditions of comparative economic equality that existed seventy-five or one hundred years ago. "Swollen fortunes" are a phenomenon of the twentieth century. But, it may be asked, wherein lies the evil of inequality, since society as a whole has undoubtedly gained in wealth? Indeed, some writers argue that this very inequality is a necessary stimulus to economic production. Without attempting to argue the point, certain economic losses that result from grossly unequal distribution of wealth may be pointed out. The great fortunes of the United States have been made possible by the unrivaled opportunities for the exploitation of natural resources, the appropriation of natural monopolies, and the development of new lines of trade and manufactures. Many of the natural resources have been monopolized by a few, who have become wealthy with the growth of population and the consequent increase in demand. Situated at strategic points in the industrial world, they have

exacted tribute of society, much as the robber barons of old. And in this they have been greatly helped by receiving discriminating favors from railroads and other natural monopolies, through which their position has been greatly strengthened against possible competitors. Under such circumstances the growth of their wealth has not measured either the efficient utilization of the resources of the continent, or the greatest social gain from their use. Increased production has not infrequently been attended by increased inequality in distribution.

On the other hand, it must be emphasized that the wonderful opportunities, which in the United States are in general open to ability and talent, have spurred the virile and capable to the fullest development of their native powers. These persons have in most instances earned their large rewards and have conferred upon society even greater benefits.

Grossly unequal distribution usually means poor economy and low efficiency in the work of production. While on the one hand there has developed in this country a splendid type of business organizer, called forth by the very conditions of industry, on the other are to be noted the wastes of overwork, child labor, sweating, industrial disease, preventable accidents, slums, etc. A better organization of industry and distribution of wealth would prevent many of these evils and would raise the general standard of efficiency. Gross inequality also means lessened pleasure in the consumption of wealth. What is needed is not merely more wealth, but wealth so distributed that the economic gratifications of society will be maximized. The sum total of economic satisfactions will be greater in a society in which there is fair equality of distribution than in one where the millionaire is jostled by the tramp. There is finally an inconsistency, not to say a danger, in a society which is politically democratic, but economically plutocratic.

Needed reforms.—It is easier to criticize than to suggest remedies, but certain conclusions seem irresistible. So far

as the problem can be solved by means of legislation, this should be used to prevent monopoly. Not only this, but society should also assert its right to all unearned values by ownership, by special taxation, or by other methods. Special privilege must be prohibited and so far as possible the door of opportunity kept open for all alike. Limited natural resources must be saved to society, and this should be done by the means that seem most feasible under the particular circumstances, whether this be government ownership, regulation, fixation of rates, or assistance. More important than legislation, however, in the ultimate solution of this as of most problems, is education. By means of better education increased individual efficiency may be obtained and economy in national production augmented. Increased production is necessary as a condition to better distribution.

Education in consumption, in the art of spending, is hardly less necessary, both to prevent waste and to achieve greater economic satisfactions from existing wealth. This may be obtained by greater wisdom in the expenditure of his income by each individual, by the greater socialization of wealth, as in the form of libraries, art galleries, parks, etc., and by the shortening of the working day, whereby leisure, one of the greatest boons of civilization, will be more generally distributed. We may trust to education to teach the best use of this leisure.

Among all the reforms suggested the one which would probably yield the largest immediate improvement in economic conditions is the more rational expenditure of income. If the positively harmful and also the relatively frivolous expenditures were eliminated from our budgets, there could be produced and consumed more things which would contribute to economic efficiency and raise the standard of living. An estimate in 1921 placed the expenditures in the United States for luxuries at \$22,700,000,000. To be sure the word "luxuries" was made to include a good many articles of consumption, such as cake and candy, ice cream, face powder, furs, and similar things, which contain some real utility and

would have to be replaced by other consumable articles, if discarded. But even allowing for exaggeration it undoubtedly remains true that great economies could be effected by wiser expenditures.

Summary : The colonial period.—The new world seems to have been reserved in all its wonderful richness of undeveloped resources for settlement mainly by the Anglo-Saxon race. The aborigines who were found in the country at the first coming of the white man had not advanced far enough in civilization to exploit the mineral or the agricultural wealth, but subsisted largely by the chase or by a primitive agriculture which barely scratched the surface of the soil. Although other nations were first on the scene they finally yielded the title of the continent of North America to the English. The motives which sent the early colonists to these shores were effective in selecting the most venturesome, energetic, and liberty-loving for the work of settlement. During the colonial period the work of the colonists was a constant struggle with nature, the hewing of homes out of the forest, and the development of the wilderness.

The industries of the colonists were determined largely by their environment and were scarcely a matter of choice ; agriculture was of necessity the most important single industry, supplemented in New England and the Middle colonies by fishing and commerce. While manufactures were early attempted, they were never developed far. Partly responsible for this was the restrictive commercial policy of England towards the colonies, which made their interests subordinate to those of the mother country.

Although the work of the colonists involved unremitting toil and hard conditions, they were never carried away by materialism. From the beginning the American people have had ideals and have sought earnestly to realize them. They have not been swept on blindly by the forces of nature, but have deliberately sought to realize certain political, social, and economic ideals. Among these ideals were political freedom and security, social equality and justice, and economic

opportunity and progress. In the simple conditions of an undeveloped agricultural community their realization seemed comparatively easy. While the accumulation of wealth was as yet slight, it was distributed fairly equally, and poverty was almost unknown. There was abundant opportunity for all who would exert themselves, and to labor itself there attached no social stigma. Widespread economic well-being characterized the end of the period.

Summary : The struggle for freedom.—The colonial period was brought to a close by the revolt of the colonies against the restrictive and irritating economic policy of England. Political independence, however, was not followed immediately by either commercial or industrial independence. Another war was necessary before the first was secured, while the second can hardly be said to have been attained until the second quarter of the nineteenth century.

The economic development of the country after the Revolution followed in the main the same course that had characterized it before. During this period the carrying-trade was developed to an extraordinary degree, while the foreign demand for our agricultural staples also gave a great stimulus to agriculture. A beginning was made in manufactures, but these industries were confined as yet to the household. As during the colonial period, so also during the thirty years following the Declaration of Independence, the economic policy of the new States and later of the Union was largely dependent upon that of England and of Europe. The face of the American people was turned to the Atlantic and their gaze was directed across it. From this colonial attitude they were first rudely shaken by the embargo and later by the War of 1812, which mark an important industrial transition in the economic life of the nation.

Summary : The westward movement.—The restrictive period inaugurated by the embargo, during which foreign intercourse was almost competely cut off, introduced industrial changes which gradually transferred the textile and other manufacturing industries from the household to the

factory. By the time of the Civil War the transition had been almost completely accomplished. More significant, however, and more important in the life of the growing nation, was the westward movement of the population. The great task of the American people, of appropriating and settling the vast territory to the west of the Alleghenies, was now undertaken on a large scale. Hand in hand with the westward movement, as a part of it, went the exploitation of the undeveloped resources of the country, the expansion and improvement of agriculture, and above all, the development of improved means of transportation and communication.

This period marks the emergency of a strong national feeling. For the first time the American people turned their back on the Atlantic and developed a commercial policy which looked to economic as well as political independence of Europe. The Monroe Doctrine was simply the political statement of the economic situation and policy, though the territorial phase was primarily emphasized in the debates on this subject. The problems of this period were internal and domestic: the disposition of the public lands, the encouragement of internal improvements, the protection of manufactures, the building up of the merchant marine, and above all, the question of slavery. The material prosperity of the country and the growing economic integration of the different sections were threatened by the existence of this institution. The dictum of Lincoln, that "this country cannot endure half slave and half free," was as true economically as it was politically. The unwillingness of the people to permit the dissolution of the Union or the further extension of slavery led finally to the Civil War and to the abolition of that institution.

As a whole the period was one of marvelous material expansion and prosperity. The prodigality of nature, the bigness of the country, and the character of their work led to the development of some fine economic virtues and also to the exhibition of some of the less desirable traits of the

American people. But, while their manners were often rude, the heart and conscience of the nation were right. Economic well-being was widespread and poverty was rare outside of the larger cities, but already complaints were heard of labor troubles, of the increasing power of monopolies and corporations, and of the growing concentration of wealth.

Summary : The rise of industrialism.— The end of the Civil War found the different sections of the country in different stages of economic development and confronted with varying problems. The South was left with a peculiar problem of its own. A new generation of free laborers had to be trained up to take the place of the former slaves, as these died off. That, and the exploitation of the untouched natural wealth of this section, is the task of the South, upon whose solution she is now entering with the vigor of a young people. In the West the free land has been practically all taken up, and the future will probably see there the application of a more intensive agriculture and the slow, steady, non-dramatic extension of other interests — the growth of the population, of cities, and of manufacturing industries.

The industrial development of the Central and the Eastern States is already far advanced, and with this growing industrialism have emerged numerous problems. The transference of manufactures from the household to the factory has been completely effected, and the factory has grown in size and complexity. Large-scale enterprise characterizes manufactures, transportation, and distribution of most of the products of the country. With the expansion of industry beyond the limits of a local market, its organization on a larger scale became imperative. The formation of corporations and trusts has been one answer to this demand ; the trust is a temporary form, but the organization of capital in larger masses is a permanent result of this movement. Association and co-operation are types of an advanced stage of economic development, and it is highly desirable that the benefits of these should be secured, while avoiding the evils of monopoly.

Hand in hand with the organization of capital has gone that of labor. The organization of industry on a large scale, with expensive machinery, has resulted in the growth of a wage-earning class ; these workers have organized on a national scale and enforced their demands with fairly steady success. The changed character of immigration complicated the labor situation and brought the question of its further restriction to the front.

Summary : Economic integration.—The abolition of slavery permitted harmonious economic co-operation between the different sections of the country ; and the last half-century has seen rapid progress toward the complete industrial integration of the whole country. As interests have become larger, sectional divergencies have been lost in the growing unity of the greater whole. With the growth of the transportation system and the expansion of the population, industries have outgrown the narrow limits of local communities and even States or sections, and have become national in scope and importance. The problems have therefore been shifted largely from the local to the national arena, and the agencies of control have necessarily become those of the Federal government, a movement which was hastened by the expansion of Federal powers during the World War.

Never before was the question of governmental regulation of private industries more important. True economic freedom, the equal opportunity of all in the race for wealth, can be obtained only by the enforcement of law and conservative control. While an unrestrained policy of *laissez faire* permitted the growth of some undesirable features in the political, social, and economic organism, there are many and hopeful indications at present not merely of the recognition of the need of public regulation, but of its actual application. There is also a growing sense of responsibility on the part of the average citizen and man of wealth. The great problem of the present in the United States is no longer that of appropriating the natural resources, but of the wise use and ad-

ministration of the great wealth of the country by those in whose ownership it rests.

There has been an enormous increase of wealth during this period, but there has been also a disproportionate concentration of wealth in the hands of a few. Old world problems of poverty — from which we had hoped we were happily free — have emerged in our cities, where destitution and vice have been localized and brought before the public gaze. On the whole, however, the decade of the 1920's probably saw as wide and general a diffusion of plenty as any previous time in our national history.

Summary : World expansion.— By the end of the nineteenth century the United States had reached a position of economic maturity which enabled it not only to meet home requirements but to produce also a surplus for export. Mass production requires ever larger markets to maintain its volume and to keep costs down. As the domestic market became glutted, new outlets were sought abroad, and the first years of the twentieth century witnessed the invasion by our manufacturers of European markets. There was a shift in the character of exports from food-stuffs and raw materials to manufactured goods.

The acquisition of the Philippines and Puerto Rico gave us new international interests, and, with the building of the Panama Canal, led to the development of new economic foreign policies which marked a wide departure from the original one of isolation. Again the American people may be said to have faced the Atlantic and directed their gaze toward Europe ; or perhaps it would be more nearly correct to say that, having reaching the Pacific, they have adopted the Janus-like attitude of looking across both oceans. Their interests are now truly international.

The most striking and far-reaching fact of this period is the emergence of the United States as a creditor nation, with enormous financial and economic interests in Europe, Asia, and the other Americas. The future will undoubtedly see a

change in our commercial policy corresponding to this altered economic position. At the same time there is danger of yielding to the pressure of a purely materialistic imperialism.

The depression of the past few years has forced to the front again domestic problems of grave concern. The existence of millions of unemployed has led to a questioning and re-examination of our whole economic organization. A demand has arisen for more conscious economic planning, which would involve the exercise of governmental powers on a scale never experienced except in time of war. The future holds grave responsibility for the wise and conservative solution of these and other economic problems, but also great promise if we maintain the high ideals of the first settlers on these shores.

SUGGESTIVE TOPICS AND QUESTIONS

1. Is the concentration of wealth a desirable thing? [C. B. Spahr, *Distribution of Wealth in the United States*; W. E. Weyl, *The New Democracy*, 139-155.]

2. Enumerate the economic causes of large fortunes. [G. P. Watkins, *Growth of Large Fortunes*; A. Youngman, *Economic Causes of Great Fortunes*.]

3. Are the rich growing richer, and the poor, poorer? [The Concentration of Wealth (symposium), in *Independent*, May 1, 1902; A. J. Ferris, *Pauperizing the Rich*.]

4. In a speech in April, 1906, President Theodore Roosevelt said: "As a matter of personal conviction, and without pretending to discuss the details or formulate the system, I feel that we shall ultimately have to consider the adoption of some such scheme as that of a progressive tax on all fortunes, beyond a certain amount, either given in life or devised or bequeathed upon death to any individual—a tax so framed as to put it out of the power of the owner of one of these enormous fortunes to hand on more than a certain amount to any one individual." Discuss this.

5. Do you agree that inequality is necessary as a stimulus to economic production?

6. Is there any danger in increased leisure from mechanization?

7. Will education really solve most of our economic problems?

8. Are expenditures for recreation to be classed as luxuries or necessities?

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INDEX

A

Accidents, 375.
 Adams, Henry, 154 n.
 T. S., 490.
 Africa, 62, 75, 298.
 three-cornered trade with, 63.
 Agricultural Adjustment Administration, 562.
 Agricultural credit, 341.
 Agricultural experiment stations, 563.
 Agricultural implements, 26, 35, 155,
 187, 274, 541.
 after the Revolution, 155, 168.
 Agricultural machinery, 279, 334-338,
 549.
 benefits of farm machinery, 279.
 combine, 550.
 economic results of, 551.
 implements, 1840-60, 277.
 improvements in, 274, 277, 550.
 in the colonies, 35.
 thresher and reaper, 276, 327.
 Agricultural societies, 154.
 Agriculture, 24, 153, 273-289, 328-
 345, 545-566.
 adaptation and experimentation
 with plants, 28.
 agricultural products in 1800, 157.
 causes of progress, 158.
 cereal production, 157, 280.
 changes in farming, 1840-1860, 277.
 character of, 288.
 colonial methods, 27.
 co-operative marketing, 565.
 cotton, 157, 284.
 Department of, 564.
 depression, 546, 554.
 effect of the Civil War on, 328.
 effect of Continental War on, 139.
 era of small farms in the South,
 341.
 European, 26.
 failure of the plantation system in
 the South, 339.
 grain trade, 282.

Agriculture, growth of the grain
 states, 157, 329.
 growth of the international grain
 trade, 338.
 home consumption of products, 283.
 improvements, 1840-60, 274.
 Indian, 26.
 in North, 154.
 in South, 153.
 mechanized, 549-553.
 native plants, 30.
 new uses of products of, 548.
 pioneer farming, 25.
 plantations of the South, 38, 295,
 302.
 production of cereals, 280.
 regional specialization, 333.
 relief, 562.
 share system, 341, 493.
 system of agricultural credit, 341.
 the colonial farmer a jack of all
 trades, 56.
 thresher and reaper, 276, 327.
 tobacco, 31.
 World War and, 545.
 See Agricultural implements, Cot-
 ton, Farming, Lands.
 Alabama, 151, 284, 294, 438.
 Aldrich report, 322, 411, 491.
 Aluminum, 357.
 "American Husbandry," 27, 34, 98.
 American Philosophical Society, 96.
 Andrew, John A., 283.
 Animal life, 361.
 Annapolis Convention, 132.
 Anthony, Susan B., 316.
 Anthracite Coal Combination, 462.
 Appalachian Region, 11.
 Apples, 26, 33.
 Apprenticeship, 61, 315.
 Arizona, 350.
 Arkansas, 244.
 Arkwright, Richard, 163.
 Assize of bread, 66.
 Australia, discovery of gold in, 234.

Austria, 234, 339, 457, 479.
 Automobiles, 537, 577, 583.
 Aviation, 578.
 Axe, 26.
 Azores, 110.

B

Baffin, William, 7.
 Balance of trade, 105, 403, 587.
 Baltimore, 70, 169, 222, 237, 249.
 Baltimore and Ohio railroad, 228, 380, 488.
 Baltimore, Lord, 15, 16.
 Bancroft, G., 55, 56.
 Banks, colonial banks, 80.
 elasticity of, 604.
 Federal Reserve system, 603-611.
 First United States Bank, 127, 248.
 history of national banking system, 415.
 inflation of the currency, 251, 413, 605, 608.
 labor, 510.
 national banking act, 415.
 reform, 610.
 Second United States Bank, 249-251.
 State banks, 248, 257, 610.
 World War and, 605.
 Barley, 32, 33, 557.
 Barnum, P. T., 320.
 Barr, Alexander, 164.
 Robert, 164.
 Beans, 26.
 Beaver hats, 51, 110.
 Belgium, 234, 339, 543.
 Berkeley, Sir William, 60, 94.
 Berries, 33.
 Beverley, Mass, 164.
 Bills of credit, see Money, paper.
 Birmingham, Ala., 438.
 Bishop, J. L., 43, 49.
 Blacksmithing, 66.
 Bland-Allison Act of 1878, 418.
 Bland, Richard, 418.
 Board of Trade and Plantations, 45, 50, 51, 65.
 Bonds, United States, 416, 421, 615.
 Books, 175.
 Boots and shoes, 51, 179, 187, 452.
 Boston, 70, 75, 92, 161, 169, 222, 237, 351.
 Bounties, 44, 52, 104, 113.
 Brass ware, 51.

Bread, 66, 187.
 stuffs, 323.
 Bremen, 234.
 Brewing, 49.
 See Liquors, malt.
 Bricks, 49, 51.
 Brisbane, Robert, 270.
 Brissot de Warville, J. P., 166.
 British Iron Trade Association, 507.
 Brook Farm, 270.
 Brotherhood of Locomotive Engineers, 510.
 Buckingham, J. S., 301.
 Buckwheat, 32, 33.
 Buffalo, N. Y., 220, 222.
 Bureau of Corporations, 471, 538.
 Butter, 35, 89, 343.
 factories, 345.
 Byrd, William, 87.

C

Cabbages, 26.
 Cabinet wares, 51, 187.
 Calhoun, John C., 207.
 Calicoes, 179.
 California, 234, 255, 317, 477.
 California Fruit Growers' Exchange, 565.
 Callender, Guy S., 124, 205.
 Canada, 478, 506.
 Canals, 220, 222, 393, 580.
 See Erie, Panama, St. Mary's, etc.
 Canary Islands, 43, 75.
 Candles, 46, 175, 187.
 Cape Cod Canal, 394.
 Cape Finisterre, 108.
 Cards, playing, 175.
 Carey, Henry C., 243.
 Carnegie, Andrew, 450.
 Carolinas, 15, 20, 39, 59, 78.
 Carriages, 51, 187.
 Cart, 26, 36.
 Cartwright, Edward, 163.
 Cattle, 34, 35, 156, 286, 342, 559.
 raising, 286, 559.
 Central America, 234, 457.
 Central Pacific railroad, 376.
 Cereals, 280, 332, 338, 555.
 Chain store, 600.
 Channing, Edward, 622.
 Character of the people, 317, 349, 619.
 Charcoal, 186.

- Charleston, 63, 70, 152, 169, 237.
 Chartered companies, 11.
 Cheese factory, 288, 345.
 Cherries, 33.
 Cheyney, E. P., 10.
 Chicago, Ill., 243, 282, 287, 380, 559, 600.
 Child labor, 482, 515, 540.
 China (country), 168, 592.
 Chocolate, 89, 175.
 Churn, 343, 345.
 Cider, 89.
 Cincinnati, O., 218, 223, 287.
 Cinnamon, 3, 29.
 Cities, 263, 465, 501, 533.
 Citizens' Industrial Association of America, 489.
 Civil rights, acquisition of, 312.
 ✓ Civil War, 328, 411, 428, 475.
 as an industrial revolution, 428.
 Civil Works Administration, 520.
 Civilian Conservation Corps, 361, 520.
 Clapboards, 43.
 Clark, Victor S., 182.
 Classes in the colonies, 83, 97.
 class distinctions, 310-312.
 Clayton Anti-trust Act, 383, 539.
 Clermont, 216.
 Cleveland, O., 223.
 Climate and economic development, 619.
 Clipper sailing vessel, 234-235.
 Clocks, 175, 188.
 Cloth, 183.
 Clothing, 52, 90, 91, 180, 320, 452.
 men's, 187, 452.
 Clover, 26, 34.
 Coal, 179, 186, 349, 350, 430, 448.
 anthracite, 186, 351, 448, 462.
 Coasting trade, 233, 237, 598.
 Cobbett, William, 318.
 Cochineal, 52.
 Cod, 46.
 Coffee, 492, 525.
 Cohoes, N. Y., 176.
 Coinage, 253, 612.
 ratio, 254, 421.
 See Silver.
 Coke, 186.
 Colonial policy, English, 102-116.
 early commercial freedom of the colonies, 106.
 economic conditions in Europe, 102.
 encouragement to industry, 113.
 Colonial policy, English colonial policy, 50, 105.
 evasion of restrictions, 114.
 mercantile system, 103.
 money and the balance of trade, 104.
 navigation ordinance of 1651, 107.
 prohibition of exports, 109.
 protection to agriculture and industry, 104.
 protection to shipping, 103.
 regulation of colonial commerce, 108.
 restrictions upon imports, 110.
 restrictions upon intercolonial trade, 111.
 restrictions upon manufactures, 112.
 taxation, 118.
 Colonization, 6-22.
 Dutch, 19.
 English, 12-19.
 French, 19.
 motives, 6-9.
 Spanish, 9-10.
 Columbus, Christopher, 5, 31.
 Combination, see Industrial Combinations.
 Commerce, 73, 232-246, 396-404, 587-601.
 assistance to, 595.
 colonial, 73-74.
 domestic, 219, 238, 396, 598.
 foreign, 74, 138, 236, 399-404, 587.
 See Colonial Policy English; Commercial Policy, American; Trade; Shipping.
 Commercial policy, American, 131, 456.
 blows at neutral trade, 140.
 commerce and manufactures during the Revolution, 130.
 commercial treaties, 128, 233.
 Continental wars and neutrality, 136.
 efforts towards freedom of trade, 128.
 embargo and non-intercourse acts, 141.
 English policy of taxation, 105-112.
 expansion of American shipping, 138.
 failure of efforts at freedom of trade, 128.
 federal control of commerce, 131.

- Commercial policy, harvest from
 neutrality, 138.
 imports in the colonies, 105.
 non-importation as a means of defence, 119, 120, 121.
 retaliation by the States, 131.
 tonnage acts, 132.
- Commercial treaties, 128, 144, 233.
- Commons, John R., 265, 271, 514.
- Communication, 244-246, 404-406, 583.
 See Post Office, Telegraph, Telephone.
- Concentration of wealth, 622-627.
- Conclusions, 115, 423, 523, 565, 582, 618-636.
- Conditions of economic development, 1, 618.
- Congress, Continental, 77, 122, 125, 161.
- Connecticut, 16, 33, 92, 179.
 River, 69.
- Conservation, 366-368.
- Constitution, federal, 127, 129, 132, 165.
 state, 224, 227.
- Convicts, 60.
- Cooking, 90, 321.
- Co-operation, 270.
- Coopers' wares, 51.
- Copper, 51, 188, 349, 356.
- Cordage, 51, 538.
- Corn, 30, 33, 281, 549, 556.
 exports, 283.
 huskers and shredders, 550, 556.
 laws, 242, 283.
 planter, 278.
- Corporations, 268.
 See Industrial Combinations.
- Cost of living, 491, 524, 627.
 See Prices, Wages.
- Cotton, raw, 33, 146-151, 300, 339, 557.
 boll weevil, 538.
 exports, 148.
 gin, 147, 150.
 picking machinery, 557.
 price, 148, 339.
 seed oil, 462, 557.
 seed planter, 557.
 seeds, 549.
 stalk cutter, 557.
- Cotton culture, cotton is king, 296.
 effect of extension on South, 191.
 effect of, on slavery, 146, 150.
- Cotton culture, effect of slavery on
 production of cotton, 300.
 extension of, 151, 339.
 introduction of, 146.
 spread of, into the Southwest, 190.
 the plantation system, 295.
 Whitney's cotton-gin, 147.
- Cotton manufactures, 175, 179, 183, 185, 187, 444, 451, 538.
 bagging, 190.
 factories, 183.
 spindles, 184, 538.
- Coxe, Tench, 149, 167, 176, 179.
- Coxey's army, 420.
- Cradle-scythe, 275.
- Cream separator, 344.
- Creditor Nation, United States a, 590.
- Crimean War, 234.
- Crisis, see Panic.
- Crompton, Samuel, 163.
- Cromwell, Oliver, 103.
- Cropping system, see Agriculture, share system.
- Cuba, 592.
- Cultivator, 278, 550.
- Cumberland Road, 213.
- Cunard line of steamships, 236.
- Currency, see Money.
- Currency act of 1900, 416, 421.
- Cutlery, 189.

D

- Dairy products, 288, 345, 560.
- Dakotas, 334.
- Dale, Thomas, 13.
- Dallas, Alexander J., 176.
- Davis, John, 7.
- DeBow, J. D. B., 181, 298, 300.
- Debt, imprisonment for, 170, 312, 615.
 farm mortgages, 289.
 federal, 616.
 of States, 225-227.
- Delaware, 38, 215, 471.
- Denmark, 12, 478.
- Department of Commerce, 595.
- Depression, 130.
 of agriculture, 546.
 of railroads, 575.
- Dewey, Davis R., 257, 411, 428.
- Diaz, Bartholomew, 4.
- Dollar, silver, 417.
- Dorchester, New England, 43.
- Douglas, P. H., 627.

Dutch, 19, 38, 49, 63.

See Holland.

Duties. See Tariff, Tonnage dues.

Dwight, Timothy, 319.

Dyes, 3, 74.

E

East India Company, Dutch, 12.

English, 121, 132.

Economic changes, 309.

Edison, T. A., 533.

Education, see Schools.

Eggs, 560.

Electric interurban railroads, 390.

Electricity, 533, 534.

Elgin, Illinois, 345.

Elkins law, 471.

Embargo, 141, 169.

Entail, 40.

Enumerated commodities, 48, 108.

Erie Canal, 220, 240, 242, 393, 580.
lake, 220, 395.

railroad, 378, 380, 420.

Evans, Oliver, 165, 214.

Exchange, 77.

Exhaustion of soil, 28.

Exploration, 6-12.

Dutch, 19

English, 12-19.

French, 19.

geographical discoveries, 3.

motives, 6-9.

Spanish, 9-10.

Exports, prohibition of colonial to
England, 108.

destination of, 592.

from United States, 75, 109, 157,
402, 529, 591.

of grain, 283, 338

F

Factory system, 166, 174-180.
conditions in, 268.

Fall line of rivers, 69.

Fall River, Mass., 176, 435.

Fanning mill, 26, 156.

Farm implements, 35, 155.

Farming,

changes in, 281.

on shares, 341, 493.

Farms,

area, 273, 331.

bonanza, 333.

era of small, 341.

number, 331.

Farms, ownership, 332.

size, 331, 341.

See Agriculture, Land tenure.

Fauna, 362.

Federal Communications Commis-
sion, 585.

Federal Farm Board, 562.

Federal Reserve system, 603-611.

Federal Trade Commission, 538.

Fertilizer, 278.

Firearms, 52.

Fish, 43, 74, 88, 104.

Fisheries, 362.

Fishing, 46.

Fitch, John, 165, 214.

Fithian, Philip, 149.

Flail, 26, 36.

Flatboat, 130, 217.

Flax, 25, 34.

manufactures of, 175.

seed oil, 175.

Florida, 19, 20, 244.

Flour, 43, 139, 179, 187, 223, 330,
339, 492, 525.

Food, 88-90, 318, 320, 323, 548.

Ford, Henry, 577.

Forestry, 359.

Forests, 358, 365.

policy, 359.

Fork, 35, 90.

Fourier, F. M. C., 269.

Fox, Luke, 7.

France, 5, 19, 75, 127, 128, 137, 234,
592.

Franklin, B., 55, 77, 88, 96.

French and Indian War, see Seven
Years' War.

Frobisher, Sir Martin, 7.

Fruits, 29, 33, 89.

Fulton, Robert, 216.

Fur trade, 42, 47, 74.

Furnaces, blast, 186.

Furniture, 52, 87, 168, 187.

Furs, 214.

G

Gallatin, Albert, 137, 142, 168, 175,
213, 220.

da Gamma, Vasco, 4.

Gary, E. H., 463.

Geographical discoveries, 3.

Georgia, 15, 17, 33, 78, 151, 254, 284,
304.

Germany, 59, 457, 478, 592.

Gibbons vs. Ogden, 217.
 Ginger, 3.
 Ginseng, 214.
 Girdling trees, 32.
 Glass, 25, 86, 168, 189, 190.
 Glass-Steagall Banking Reform Act, 611.
 Gloves, 51.
 Gold, 234, 254, 349.
 discovery of, in Alaska, 421.
 discovery of, in Australia, 234.
 discovery of, in California, 234, 255.
 reserve, 414, 419, 421, 604, 612.
 standard, 421.
 See Money.
 Gompers, Samuel, 511.
 Gould, B. A., 621.
 Gould, Jay, 378.
 Grain,
 exports, 283, 338.
 grading, 338.
 harvester, 276.
 trade, 282, 338.
 traffic, 338.
 Grand Eight-hour League, 487.
 Grand Trunk railroad, 380.
 Grant, U. S., 413.
 Grapes, 33.
 Great Lakes, 220, 242, 395.
 commerce on, 220, 395.
 Great Western, 235.
 Green, William, 511.
 Greenbacks, see United States notes.
 Grenville, George, 119.
 Grubber, 278.
 Gunpowder, 175.

H

Hair powder, 175.
 Hakluyt, Richard, 7.
 Hamburg, 234.
 Hamilton, Alexander, 166.
 Hammond, M. B., 342.
 Hanseatic League, 5.
 Hardware, 50, 176, 179.
 Hargreaves, James, 163.
 Harrow, 26, 35.
 Harvard College, 94.
 Hats, 51, 113, 175, 187.
 Hawkins, J., 31.
 Hay, 30, 34, 275.
 Hemp, 25, 29, 34, 44, 52.
 manufactures of, 175, 189, 538.

Hepburn Act, 388.
 Hibbard, B. H., 554.
 Hides, 214.
 Historical novels, 23, 41, 54, 68, 82, 101, 117, 134, 145, 160, 173, 209, 231, 247, 260, 272, 291, 308, 327, 347, 370, 407, 426, 459, 474, 499, 527, 544, 568, 586, 602, 617.
 Hoe, 26.
 horse, 278.
 rotary, 550.
 Hogs, 35, 286, 559.
 Holding company, 462, 468.
 Holland, 5, 12, 17, 128, 144, 168, 234, 343.
 See Dutch.
 Holmes, George K., 624.
 Holyoke, Mass., 176.
 Homestead Act, 330.
 Hopkins, H. L., 520.
 Horses, 34, 156, 287, 319, 337.
 Hosiery, 538.
 Hot-air blast, 186.
 Household industries, 42, 48, 113, 142, 162, 167.
 Houses, 85-88, 321.
 Houston Ship Canal, 394.
 Hudson Bay, 17.
 Hudson River, 38, 69, 216, 220.
 Hussey, Obed, 277.

I

Ickes, H. L., 520.
 Illinois, 244, 283, 350, 386, 559.
 railroad commission, 386.
 Illinois Central railroad, 244.
 Immigration, 262, 476, 504.
 bureaus, 477.
 Chinese, 477.
 convict labor, 477.
 industrial effects, 478.
 quota law, 506.
 restrictive legislation, 477, 505.
 Imports, into colonies, 75, 121, 123.
 into United States, 168, 403, 593.
 Income, 625.
 Independent treasury system, 256.
 India, 5, 168.
 rebellion in, 234.
 route to, 7.
 Indiana, 222, 226, 317, 328, 559.
 Indians, 17, 26, 30, 36, 47, 63, 69, 73.
 agriculture 26.

- Indigo, 29, 33, 39, 42, 52, 74, 150.
 Industrial combinations, 460-472.
 advantages, 469.
 combination movement, 464.
 early attempts at, 462.
 evils, 470.
 extent of trust movement, 465
 incorporation laws, 471.
 legislation against, 471, 538.
 open price associations, 463.
 organization of industry, 264, 461.
 Standard Oil trust, 462, 467.
 tendency towards, 460.
 See Corporations, Manufactures.
 Industries, 42-52.
 bounties, 52.
 chemical and dye, 542.
 extractive, 348-368.
 fishing, 46.
 fur-trading, 47.
 household manufactures, 48.
 iron manufactures, 50, 446.
 lumbering, 43.
 mechanization of, 511.
 mineral, 349.
 miscellaneous manufactures, 49, 51.
 naval stores, 44.
 organization, 65.
 regulation, 66.
 ship-building, 44.
 tariffs, 52.
 textile manufactures, 50.
 Inheritance, 39.
 Internal improvements,
 by the States, 223.
 failure of State enterprise, 226.
 investment of borrowed capital,
 225.
 Interstate Commerce Act, 381, 385.
 commission, 388.
 long and short haul clause, 386,
 389.
 Inventions, 180, 441, 532.
 Iowa, 244, 559.
 Ireland, 30, 59, 112, 191, 262, 478.
 Iron, 25, 50, 187, 349, 355, 447.
 and steel industry, 447, 448, 528.
 Bessemer process, 449.
 concentration of industry, 389.
 implements, 36.
 manufactures, 50, 113, 175, 179,
 185, 187, 189, 355, 438.
 ore, 50, 354, 356, 541.
 pig iron, 50, 185, 447, 541.
 See Manufactures, Mining.
 Irrigation, 560.
 Italy, 339, 592.
- J
- Jack-of-all-trades, 56.
 Jackson, Andrew, 226, 251, 310.
 James, Thomas, 7.
 Jamestown, 13, 27, 35.
 Japan, 506, 592.
 Jay, John, 128
 Treaty, 148.
 Jefferson, Thomas, 141, 156, 313.
 Jevons, W. Stanley, 446.
 Jewelry, 175.
 Jews, Russian, 452.
 Johnson, H. S., 540.
 Johnston, J. F. W., 289
 Joint Traffic Association, 382
- K
- Kalm, Peter, 27.
 Kansas City, 559.
 Kentucky, 286, 294, 350.
 King, W. I., 627.
 Knights of Labor, 484, 516.
 Knit goods, 538.
- L
- Labor, 55-67, 266-271, 475-497, 500-
 526.
 advantages of servitude, 61.
 agricultural, 492.
 American Federation of Labor,
 486, 511, 516.
 and Civil War, 475.
 and Trusts, 471
 attitude towards slavery, 65.
 bureau, 483.
 child, 482, 515, 540.
 collective bargaining, 500, 520.
 composition of the labor force, 480.
 condition of, 170.
 conditions in England in the
 seventeenth century, 78.
 cooperation, 58.
 cost of living, 491, 524.
 distribution of slavery in colonies,
 64.
 early slave-trade, 62.
 effect of machinery on, 511.
 efficiency of, 506.
 employers' associations, 489.
 employment offices, 515.
 factory inspection, 484.

- Labor, factory system, 166, 174, 483.
 growth of a wage-earning class, 480.
 hours, 484, 492, 514.
 impressment, 60.
 indentured servants, 59.
 industrial effects of immigration, 478, 504.
 in South, 493.
 insurance, 516, 521.
 introduction of slavery into America, 62.
 involuntary servitude, 59.
 itinerant, 66.
 Knights of Labor, 485, 516.
 legislation, 482, 505, 514.
 mobility, 507.
 new capitalism, 510.
 organizations, 170, 265, 270, 484, 516.
 population and immigration, 262, 476, 501.
 scarcity in colonies, 57.
 strikes, 487, 514.
 trade unions, 484, 516.
 unemployment, 512.
 wages, 84, 91, 322, 489, 524.
 welfare of, 322.
 women, 480, 515.
 World War and, 508.
 See Immigration, Population, Trade Unions.
- Lakes-to-the-Gulf Deep Waterway, 580.
- Land holding,
 in New England, 37.
 in Middle colonies, 38.
 in South, 38.
- Land tenure, 36, 40.
- Lands, public, 139, 198, 560.
 disposal of the land for settlement the permanent policy, 201.
 early land policy, 198.
 exhaustion of, 295.
 grants of land, 39, 203.
 Homestead Act, 267.
 importance of, 200.
 irrigation and the public lands, 560.
 pre-emption of, 203.
 sales of, 201.
 sales on credit, 200.
 speculation in Western lands, 202, 252.
 See Farms.
- Lard, 179.
- Lawrence, Mass., 176.
- Lead, 175, 179, 189, 349, 357, 462.
- Leather, 25, 43, 175-
 manufactures of, 51, 180, 187, 190, 436.
- Lentils, 29.
- Leroy-Beaulieu, Pierre, 337.
- Levasseur, E., 507.
- Lewis, John L., 519.
- Liberty loans, 615.
- Linen, 52, 91, 189.
- Liquors, 51, 89, 175, 188.
 malt, 51, 175, 188, 492.
 spirituous, 51, 175, 188.
 vinous, 89.
- Live stock, 34, 156, 285, 288, 342, 559.
 See Cattle.
- Living conditions, 320.
 of the farmer, 323.
- Livingston, Robert R., 216.
- Locomotive, 230.
- London Company, 12, 13, 39.
- London Society of Arts and Manufactures, 52.
- Long Island Sound, 69.
- Longstreet, William, 215.
- Louisiana, 151, 226, 244, 284.
- Louisville, Ky., 219.
- Lowell, Francis C., 176.
- Lowell, Mass., 176, 263, 269.
- Lubeck, 234.
- Lucerne, 29, 158.
- Lumber, 25, 43, 44, 180.
- Lumbering, 43.
- Luxuries, 492, 525, 629.
- Lynn, Mass., 436.
- M
- Machinery, 164, 181, 187, 511, 528.
 England forbids exportation of, 163.
 interchangeable parts, 453.
 introduction into the United States, 164.
 standardization, 454.
 See Cotton, Textile, Agricultural.
- McCormick, Cyrus H., 277.
- McKay sewing machine, 452.
- McMaster, John B., 142, 212, 312 n., 320.
- Madder, 29, 158.
- Madeira islands, 43, 75, 110.

- Madison, James, 188.
 Magellan, Fernando, 5, 7.
 Mail order store, 599.
 Maine, 471.
 Maize, 30.
 See Corn.
 Mann-Elkins Act, 389.
 Manning, William, 277.
 Manufactures, 161-171, 174-191, 427-453, 528-543.
 advantages of large scale production, 432.
 birth of the factory system, 166.
 causes of growth, 430, 531.
 causes of localization, 435.
 Civil War as an industrial revolution, 428.
 clothing and footwear, 452.
 comparison of United States with other nations, 429, 445, 535.
 concentration in large establishments, 432.
 Constitution and the beginning of protection, 165.
 cotton, 168, 183, 444.
 culmination of the small industry, 178.
 directions of inventive activity, 180.
 during revolution, 130, 161.
 economic independence, 178.
 England forbids the exportation of machinery, 163.
 general prosperity, 182.
 growing self-sufficiency of the United States, 429, 431.
 growth of, 175, 179, 427, 528.
 household, 42, 48, 113, 142, 162.
 importations of manufactures, 168.
 industrial combinations, 460-472.
 industrial revolution in America, 174.
 industrial revolution in England, 162.
 interchangeable mechanism, 439.
 introduction of machinery into the United States and attempts at manufacturing, 164.
 in the South, 438, 446.
 iron and steel, 161, 185, 187, 446, 528, 535.
 localization of industries, 433.
 migration of industries, 178, 436.
 miscellaneous, 187, 451.
 patent system, 180, 441, 534.
 Manufactures, power in, 442.
 return of peace after War of 1812, 176.
 specialization in localities, 435.
 spread of the factory system, 167, 177.
 standardization of machinery, 439.
 textile, 50, 176, 183, 443, 537.
 use of anthracite coal, 186.
 World War and, 529.
 Manure, 27.
 Marble, 188.
 Markets, 7, 77, 228, 264, 565, 599.
 Marshall, James, 255.
 Marshall, John, 57.
 Marshall, John, Chief Justice, 251.
 Martineau, Harriet, 268.
 Maryland, 9, 15, 33, 55, 59, 60, 77, 198, 222, 226, 294.
 Massachusetts, 44, 45, 66, 79, 179, 188, 222, 477, 483, 516, 623.
 Massachusetts Bay, 14, 35, 37, 91.
 Masts, 44, 45.
 Mather, Cotton, 87.
 Mediterranean, 3, 5, 129.
 Mercantile system, 103.
 English colonial policy, 102, 105.
 money and the balance of trade, 104.
 protection to agriculture and industry, 104.
 protection to shipping, 103.
 Merchant-manufacturer, 265.
 Merchant marine, English, 236.
 American, 397, 598.
 See Shipping.
 Mexico, 153, 506.
 Michigan, 222, 226, 244, 359.
 lake, 282, 395.
 Middle colonies, 33, 42, 55, 83.
 states, 330, 336.
 Milk, 87, 549, 560.
 Mill,
 grist, 51.
 saw, 43.
 slitting and rolling, 50, 113.
 Millet, 29.
 Mineral and metals, coal, 350.
 copper, 356.
 iron ore, 354.
 miscellaneous, 357.
 natural gas, 353.
 petroleum, 352.
 Mining, 349-353.
 Minnesota, 350.

- Mississippi jetties, 391.
 river, 131, 151, 213, 217, 226, 238, 391.
 State, 283, 317, 341.
 Missouri river, 244.
 state, 244.
 Mobile, 203, 237.
 Molasses, 43, 51, 111.
 Molasses Act, 111.
 Money, 77-81.
 and the balance of trade, 81.
 bank-note issues, 80, 248.
 coinage, 253, 612.
 colonial paper money, 79, 125.
 commodity money in the colonies, 78.
 contraction, 412.
 currency act of 1900 and gold discoveries, 421.
 discovery of gold in California, 255.
 experimentation, 612.
 financial and economic effects, 409-412.
 free silver agitation, 417-420.
 inflation of the currency, 251, 413, 605, 608.
 issue of legal tender notes, 408.
 national banks, 415.
 paper, 79, 125, 127.
 resumption of specie payments, 414.
 See Banks, Gold, Silver, United States Notes.
 Montana, 515, 521, 552.
 Montreal, 47.
 Moratoria, 130.
 Morey, Samuel, 215.
 Morrill Act, 331.
 Morse, Samuel F. B., 244.
 Motives for exploration, economic, 6.
 political, 8.
 religious, 8.
 Mowing machine, 277.
 Mules, 156, 337.
 Mulhall, M. G., 429.
 Musical instruments, 181.
- N
- Nails, 190.
 Napoleon, 139, 140.
 National Association of Manufacturers, 489.
 National Greenback Party, 343.
- National Industrial Recovery Act, 519, 539, 540.
 National Labor Union, 486, 551, 559.
 Natural gas, 353.
 Natural resources, 619-622.
 Naval stores, 42, 44, 74, 104, 108, 110.
 Navigation Acts, 103, 107.
 Nebraska, 551, 559.
 Negroes, 62, 149, 304, 341, 438, 493, 558.
 Neutrality and foreign trade, 136-144, 529, 545.
 and Continental wars, 136.
 profits from, 138.
 rights of, 137.
 Nevada, 417.
 New Bedford, Mass., 435.
 Newbold, Charles, 155.
 New England, 20, 24, 33, 34, 38, 42, 46, 56, 83, 93, 95, 119, 179, 185, 189, 238, 249.
 Newfoundland, 8, 17.
 New Hampshire, 313.
 New Harmony, Ind., 267.
 New Jersey, 15, 38, 59, 62, 462, 471.
 New Orleans, 217, 219, 237, 240, 283.
 Newport, R. I., 75, 79.
 Newspapers, 96, 154, 246, 406, 584.
 New York Central railroad, 242, 380.
 New York City, 70, 75, 169, 203, 230, 237, 253, 261, 487, 600.
 colony, 15, 24, 36, 39, 59, 94.
 state, 188, 207, 215, 226, 313, 317, 477.
 Non-enumerated commodities, 108.
 Non-importation, 119, 120, 121.
 Non-intercourse, 141.
 North, 57, 72, 97, 261, 263.
 Central States, 334.
 North Carolina, 42, 151, 179, 254, 284, 438.
 North Dakota, 563.
 Northern Pacific railroad, 376, 420.
 Northern Securities case, 382, 472.
 Northwest, 329, 334.
 passage 7.
 Norway, 234, 478.
 Nova Scotia, 17.
 Nuts, 33.
- O
- Oats, 26, 32.
 Oberlin College, 313.
 Occupation, 24.
 Ogburn, W. F., 626.

Ogden, Utah, 376.
 Ohio (state), 179, 188, 198, 226, 282.
 canal, 223.
 river, 216, 223.
 Oil, 187, 352.
 Olives, 29.
 Olmsted, Frederick Law, 294, 299, 301.
 Omaha, Neb., 376.
 Onions, 26, 34.
 Open price associations, 465.
 Orders in Council, English, 140, 169.
 Orient, 3, 122, 129, 185.
 Ornsbee, Elijah, 215.
 Oswego, N. Y., 47.
 Owen, Robert, 267.
 Oxen, 287.

P

Panama Canal, 383, 600.
 Isthmus of, 255.
 Pan-American Union, 595.
 Panic of 1819, 250.
 of 1837, 252, 254.
 of 1857, 258.
 of 1873, 413.
 of 1893, 420.
 of 1907, 422.
 of 1920, 606.
 of 1929, 609.
 Paper, 51, 168, 175, 187, 191.
 Patents, 180, 441, 534.
 See Manufactures.
 Paterson, N. J., 176.
 Pauperism, 182.
 Pears, 33.
 Peas, 26, 34.
 Peck's New Guide to the West, 204.
 Penn, William, 16, 36, 38.
 Pennsylvania, 9, 15, 59, 62, 92, 179, 188, 222, 226, 317.
 Pennsylvania railroad, 242, 380, 488.
 Pensions, 521.
 Peto, S. Morton, 182, 441.
 Petroleum, 349, 352.
 Philadelphia, 70, 75, 169, 212, 215, 222, 237, 265, 313.
 Philadelphia and Reading railroad, 420.
 Phillips, U. B., 295.
 Phosphates, 349.
 Pig-iron, see Iron, pig.
 Pilgrims, 9, 14.
 Pipe lines, 583.

Pitkin, Timothy, 139.
 Pitt, William, 128.
 Pittsburgh, 212, 222.
 Planing machine, 181.
 Plantations, 38.
 character of, 302.
 system, 295, 339.
 Plants, of Europe, 32.
 of America, 29, 33.
 Plow, 26, 28, 35, 155, 276, 550.
 Plums, 33.
 Plymouth, 12, 13, 14, 44.
 Poland, 479.
 Population, 8, 169, 182, 261-264, 305, 464-480, 501-506.
 composition of, 503.
 growth of, 55, 169, 207, 261, 273, 329, 476, 501.
 industrial distribution, 478, 552.
 movement of 204-207.
 Pork packing, 288.
 Portages, 70.
 Portland, Me., 77.
 Portsmouth, O., 223.
 Portugal, 5, 10, 44, 128, 234.
 Post-office, 77, 246, 405, 584.
 parcel post, 406, 584.
 postal savings bank, 405.
 Pot and pearl ashes, 43, 44.
 Potato, 30.
 famine in Ireland, 252.
 Pottery, 51.
 Poultry, 560.
 Power loom, 163, 183.
 Prices, 421, 491, 524.
 See Aldrich report.
 Primogeniture, 40.
 Printing, 52, 187.
 Privateers, 138, 141.
 Progress of the people, 83-100, 309-325.
 Proprietary colonies, 15.
 Protection, 165, 188.
 Prothero, George W., 34.
 Provisions, 187.
 Prussia, 128, 144, 234.
 Public lands, see Lands, public.
 Public Works Administration, 520.
 Puerto Rico, 596.
 Pumpkins, 31, 34.

Q

Quincy tramway, 228.
 Quit rent, 37.

R

Radio, 534, 584.
 Railroads, building, 227, 228, 243, 371, 569.
 character of American railroad, 373.
 combination, 379, 382.
 competition, 242, 380.
 construction and finance, 377.
 discrimination, 378, 385.
 electric interurban railways, 390.
 federal administration, 572, 575.
 federal regulation, 381, 386-390, 575.
 freight traffic, 374.
 importance, 227.
 passenger service, 375.
 pooling, 380.
 rates, 383, 386, 576.
 state regulation, 386, 573.
 transcontinental, 376.
 Transportation Act of 1920, 572.
 World War and, 571.
 See Transportation.
 Rails, steel, 374.
 Rake, 36, 275.
 horse, 274.
 Rape, 158.
 Ratzel, 213.
 Read, Nathan, 215.
 Reaping machine, 277, 328.
 Reciprocity, 456, 543.
 Reconstruction Finance Corporation, 539.
 Recreation, 95, 319.
 Reforms needed, 628.
 Renaissance, 2.
 Reorganization, financial, 127.
 Revolution, American, 118-129, 162.
 causes, 123.
 industrial, see Industrial revolution.
 resources, 125.
 Rhode Island, 9, 16, 179.
 Rice, 32, 39, 42, 74, 110, 123, 150.
 Richardson, W. A., 413.
 Rivers, 69.
 commerce on, 131, 213, 214, 238, 391, 579.
 Roads, 70, 396, 578.
 colonial, 70.
 turnpikes, 211.
 Rochester, N. Y., 221.
 Rockefeller, John D., 462.
 Roosevelt, Franklin D., 519.

Roosevelt, Theodore, 471.
 Rotation of crops, 27, 38.
 Royal African Company, 63.
 Rum, 51.
 Rumsey, James, 165, 214.
 Rye, 12, 26, 32, 168, 234, 339, 479, 592.

S

Sacramento, Cal., 376.
 Sainfoin, 29.
 St. Lawrence River, 19, 47.
 St. Lawrence Ship Channel, 580.
 St. Louis, Mo., 244.
 St. Mary's Falls canal, 394, 580.
 Salt, 25, 51.
 trust, 462.
 San Francisco, Cal., 246, 422.
 Savannah, Ga., 70, 77.
 Sawmills, 43.
 Schools, 92-95, 313-316, 563.
 Schuylkill canal, 242.
 Scotland, 59.
 Scott, Thomas A., 380.
 Scythe, 36, 275.
 Seaman, E. C., 268, 295 n.
 Securities and Exchange Act, 610.
 Seed, drills, 278.
 See Agricultural implements.
 Selected References, 23, 41, 53, 68, 82, 101, 117, 134, 145, 160, 173, 193, 209, 231, 247, 259, 272, 291, 308, 326, 347, 370, 407, 425, 459, 473, 498, 526, 544, 568, 586, 602, 617, 637.
 Servants, 59-62.
 advantages, 61.
 indentured, 59.
 "free-willers," 59.
 treatment of, 60.
 See Labor.
 Servitude, 59.
 involuntary, 59-60.
 voluntary, 59.
 See Labor.
 Seven Years' War, 47, 197.
 Sewall, Samuel, 87.
 Sewing machine, 181, 444.
 Seybert, Adam, 213.
 Sheep, 35, 157, 286.
 Sheffield, Lord, 106.
 Sherman currency act of 1890, 419.
 anti-trust law, 463, 471.

- Ship-building, 44, 45, 104, 107, 139, 234, 597.
 Shipping Board, 596.
 Shipping, American shipping after the War of 1812, 143, 232.
 blows at neutral trade, 140.
 coasting and inland trade, 233, 237, 598.
 commercial legislation and treaties, 233.
 continental wars and neutrality, 136.
 embargo and non-intercourse acts, 141.
 expansion of American shipping, 138, 596.
 foreign shipping, 397.
 harvest from neutrality, 138, 588.
 introduction of the iron steamship, 235.
 the American clipper, 234.
 tonnage acts, 132, 233.
 World War and, 596.
 See Commerce, Sailing vessel, Steamboat, Trade.
 Sickie, 26, 36.
 Silk, 52.
 manufactures, 189, 432, 444, 538.
 Silver, 254, 349.
 Bland-Allison Act, 418.
 certificates, 418.
 coinage, 254, 417.
 demonetization of, 417.
 dollar, 417.
 Sherman act, 419.
 Skid, 36.
 Slater, Samuel, 166, 168.
 mill, 184.
 Slaughtering, 288, 381.
 and meat packing, 344, 438, 549, 559.
 Slavery, 62, 151, 292-306, 339.
 abolition of, 149.
 advantages of, 298.
 attitude towards, in colonies, 65.
 character of plantation management, 295, 302.
 decline of, 148.
 defects of, 299.
 development of South prevented by, 306.
 distribution in colonies, 64.
 economic cost of, 301.
 effect of cotton culture on, 150, 296.
 Slavery, firmly established by spread of cotton culture, 297.
 growth of, 293.
 introduction into America, 62.
 moral effects of, 304.
 nature of, 294.
 plantation system, 295.
 slavery and the population, 305.
 See Labor, Servants.
 Slaves, 60, 62, 152, 285.
 number, 63.
 Slave-trade, 62-64, 151, 298.
 Smith, Adam, 120.
 Smith, Captain John, 9, 13, 46, 49.
 Smuggling, 114, 122.
 Soap, 175, 187.
 Social Security Act, 521.
 Solidarity, 19.
 South, 25, 38, 42, 58, 83, 97, 189, 261, 274, 292, 304.
 agriculture in, 296.
 and slavery, 292-306.
 capital in, 300.
 industrial development of, 292, 438.
 progress prevented by slavery, 291, 306.
 See Cotton, Manufactures, Slavery.
 South America, 234, 457.
 South Carolina, 32, 123, 151, 190, 284, 304, 495.
 Spade, 26.
 Spain, 5, 10, 30, 44, 75, 105, 128.
 colonization, 9.
 exploration, 7.
 war with, 400.
 Specie circular, 253.
 Specie payments, suspended, 409.
 resumption of, 414.
 Speculation, 202, 256, 607.
 Spelt, 29, 158.
 Spices, 3, 8, 189.
 Spinning and weaving, 42.
 jenny, 164.
 Spurry, 158.
 Squash, 31.
 Stage, 72.
 Stamp Act, 119, 120, 124.
 Standard of living, 626.
 Standard Oil Company, 378, 385, 397, 462, 467.
 South Improvement Company, 468.
 Stanwood, Edward, 128.
 Starch, 462.
 Staves, 43.

Steamboat, 214-217.
 invention of, 214.
 iron, 235.
 traffic, 219.
 See Ship-building.

Steel, 161.
 Bessemer, 449.
 concentration of manufactures, 432.
 rails, 541.
 See Iron manufactures.

Steel trust, 464.

Stevens, John, 215.

Stevens, Uriah S., 486.

Stirling, James, 273.

Stone, 187.

Stoves, 181.

Strawberry, 31.

Strikes, 486, 488, 509, 514.

Suffrage, 312.

Sugar, 25, 89, 190, 283, 455, 492, 525, 541.
 bounty on, 455.
 trust, 462.

Sugar act, 119, 124.

Suggestive Topics and Questions, 22, 40, 52, 67, 81, 100, 116, 133, 144, 159, 172, 192, 208, 230, 246, 259, 271, 289, 306, 325, 345, 368, 406, 424, 457, 472, 496, 525, 543, 566, 585, 601, 616, 636.

Summary,
 colonial period, 630.
 economic integration, 634.
 material progress, 98, 325, 496.
 material progress in colonies, 98, 630.
 rise of industrialism, 633.
 sectional divergence, 1808-1860, 324.
 social development in colonies, 99.
 struggle for commercial independence, 1760-1808, 631.
 westward movement, 631.
 world expansion, 635.

Sumner, William G., 182.

Superior, Lake, 395.

Surplus revenue in 1872, 454-
 in 1881, 455.

Sutter, John A., 255.

Sweating system, 452.

Sweden, 12, 44, 128, 144, 234, 478, 543.

Switzerland, 234, 339.

Syracuse, N. Y., 221.

T

Tanning, 43, 44.

Tar, 45.

Tariff, 52, 131, 165, 188, 453, 542.
 attempts to reduce, 454.
 commission, 455, 541.
 during Civil War, 453.
 of 1789, 132, 165.
 of 1816-1824, 188.
 of 1824-1842, 189.
 of 1842-1846, 190.
 of 1846-1861, 191.
 of 1864, 453.
 of 1883, 455.
 of 1890, 455.
 of 1894, 456.
 of 1897, 456.
 of 1909, 456.
 of 1913, 541.
 of 1922, 542.
 of 1930, 542.
 reciprocity, 456, 543.
 reform, 370.
 retaliation, 131.

Tarr, R. S., 355.

Taxation, 118, 126, 614.
 See Tariff, Tonnage dues.

Taylor, John, 153.

Tea, 25, 89, 121.

Telegraph, 181, 244, 404, 583.
 duplex, 404.
 wireless, 534.

Telephone, 405, 533, 584.

Tenancy, 332, 554.

Tennessee, 151, 283, 438.

Tennessee Valley Development, 520.

Texas, 151, 293, 298, 317, 343.

Textile manufactures, 50, 176, 189, 443.
 improvements in, 444.
 protection to, 189.

Three-cornered trade with Africa, 63, 76.

Threshing machine, 276.

Timothy, 30.

Tin, 188.

Tobacco, 31, 32, 39, 42, 74, 109, 123, 187, 285, 492, 525.

de Tocqueville, Alexis, 288.

Tonnage dues, 132, 165.

Townshend Acts, 119.

Tractors, 550.

Trade, 69-81.
 balance of, 105, 403, 587.
 coastwise, 237, 598.

- Trade, domestic, 219, 238, 240, 396.
 efforts towards freedom of, 128.
 foreign, 74, 128, 138, 236, 399, 400, 587.
 neutral, 137, 140, 588.
 principles of international, 400.
 river, 213, 219, 391.
 routes of, 600.
 World War and, 588.
 See Carrying-trade, Commerce, Shipping.
- Trade unions, 484-488, 516.
 American Federation of Labor, 486, 511, 516.
 Committee on Industrial Organization, 519.
 Industrial Workers of the World, 518.
 Knights of Labor, 484, 516.
 strikes, 487, 514.
- Trans-Missouri Freight Association, 382.
- Transportation, 72, 371-396, 569-585.
 air, 578.
 canal and river routes, 393, 580.
 electric interurban railroads, 390.
 Erie canal, 220-222, 580.
 failure of State enterprise, 227.
 federal aid, 212.
 importance of, 210.
 in Ohio, 223.
 internal improvements by the States, 223.
 invention of steamboat, 214.
 investment of borrowed capital, 225-227.
 lake transportation, 220, 382, 394.
 motor, 537, 577, 583.
 ocean merchant marine, 397, 596.
 railroad building, 227, 243, 371, 569.
 river trade, 213, 391, 579.
 stages of development, 211.
 turnpike period, 211.
 See Commerce, Railroads, Shipping.
- Trolley, see Electric interurban railroad.
- Trollope, Mrs., 324.
 Trotter, Spencer, 350.
- Trusts, 460-472.
 anti-trust law, 463, 471.
 movement, 460, 464.
 prices, 470.
 profits, 470.
- Trusts, promotion, 464.
 Standard Oil, 462, 467.
 See Industrial Combinations.
- Turkey, 12, 339, 362.
- Turnip, 26, 34.
- Turnpikes, 211-213.
- Turpentine, 44, 180.
- Twine binder, 335.
- U
- Unemployment, 512.
- Union Pacific railroad, 376, 420.
- United States Bank, First, 127.
 Second, 249-251.
- United States notes, 408-415.
 contraction of, 412.
 effect on cost of war, 411.
 effect on prices, 411.
 effect on wages, 412.
 financial effects, 409.
 inflation, 413.
 resumption of specie payments, 414.
- United States Shipping Board, 598.
- United States Steel Corporation, 451.
- Utica, N. Y., 221.
- V
- Van Buren, Martin, 266.
- Vandalia, Ill., 213.
- Vanderbilt, Cornelius, 310, 380.
- Vegetables, 29.
- Vetches, 158.
- Virginia, 24, 32, 39, 55, 60, 63, 77, 123, 294.
- W
- Wages, 84, 91, 322, 489, 493, 524.
 Wages and Hours Act, 523.
- Wagons, 51, 281.
- Wales, 59.
- Walker, Francis A., 158, 476.
- Walker, Robert J., 190, 239.
- Waltham, Mass., 176.
- Wampum, 78.
- War of 1812, 143, 171, 210.
- Washington, Booker T., 494.
- Washington, D. C., 245, 249.
- Washington, George, 131, 137.
- Waste products, utilization of, 433.
- Wastes of modern economic life, 363.
- Water power, 353.
- Waterbury, Conn., 380.

- Wealth, 96.
 concentration of, 622-627.
 distribution of, 627.
 Webster, Daniel, 183.
 Weeden, W. B., 57.
 Wells, D. A., 122 n., 334, 442.
 West, 207, 222, 249, 261, 318.
 West, settlement of, 205.
 West India Company, Dutch, 47.
 West Indies, 43, 46, 51, 63, 75, 111,
 114, 123, 128, 137, 298, 339.
 West Virginia, 350, 515.
 Westward movement, 130, 195-207.
 early westward migration, 197.
 significance of, 195.
 Whale fins, 39, 45.
 fishery, 46.
 oil, 43, 46.
 Wheat, 32, 74, 280, 330, 339, 492,
 525, 556.
 Whiskey trust, 462.
 Whitney, Eli, 146, 147, 439.
 William and Mary College, 94.
 Williams, Roger, 9.
 Wilson, Woodrow, 2, 506, 538.
 Wine, 89.
 Winthrop, J., 90.
 Wisconsin, 179, 240, 244, 282, 522.
 Woad, 158.
 Women, employment of, 480.
 position of, 316.
 Woodbury, Levi, 217, 234.
 Wool, 25, 34, 52, 113, 189, 541.
 Woolen manufacture, 113, 180, 191.
 World War, 500.
 and debt, 615.
 and expenditures, 613.
 and Federal Reserve system, 605.
 and foreign trade, 586.
 and labor, 508.
 and railroads, 571.
 and shipping, 596.
 and taxes, 614.
 Wynne, J. H., 35.

Y

Yale College, 319.
 Yarn, 113.

Z

Zinc, 349, 357.